

Remarks

Claims 1-20 were pending in the present application. No claims have been amended, added, or cancelled. Therefore, claims 1-20 remain pending in the present application.

Comments on “Preliminary Discussion”

It is unusual for the Patent Office to provide a “preliminary discussion” of the patentability of a case that is not directly tied to a statutory rejection. Therefore, Applicant believes it prudent to traverse or otherwise comment on this discussion.

Applicant recognizes the great deal of effort that the Examiner has put forth in this series of cases. While Applicant and Examiner fight on opposite sides of an ideological battle, Applicant shares Examiner’s excitement in working on the “cutting edge” of patent law. Applicant sincerely appreciates the Examiner’s interest and efforts.

That said, let the battle begin. ☺

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Upon a close review of paragraphs 3-6, one will find words and phrases such as “bifurcated,” “two separate classes,” “two separate forms,” “bifurcated” (again!) and “dichotomy,” leading the alert reader to conclude that, in the opinion of the U.S. Patent and Trademark Office, there exist two separate intellectual property protection schemes: namely, patent and copyright.

Applicant does not disagree that copyright law protects one class of creation while patent law protects another class of creation. The Patent Office argues that the line is drawn between copyright and patent where “writing” meets – hmmm – something “technological.” Applicant heartily disagrees. For example, software is nothing more than electronic writing¹, yet will be patentable if it satisfies other requirements, such as 35 U.S.C. 102 and 103². The test of patentability has nothing to do with whether an invention can be written. Rather, patent law aims to protect invention, while copyright law aims to protect expression. To the extent that an invention can be used for

¹ Although the fact that a software program could be embodied and read by a computer in paper form is indisputable.

² See, e.g., *AT&T Corp. v. Excel Communs., Inc.* 172 F.3d 1352 (Fed. Cir. 1999).

expression, a particular embodiment of that invention may be protected by both patent and copyright law.

But don't worry. Patent law and copyright law need not stomp on each other's toes. For example, the patent on a software program extends to its underlying function or method, while the copyright on that same program extends to the expression of that underlying function or method. One who verbatim copies a portion of the software program – but a portion too small to execute the patented method – infringes the copyright but not the patent. Conversely, one who writes his own software program to execute the entire patented method infringes the patent but not the copyright. See? No toe-stomping! Patents and copyrights are, indeed, “bifurcated,” but that says nothing about whether a particular embodiment of an invention could be protected by both a patent and a copyright. While Applicant does not dispute that stories written based on his plots are copyrightable, that fact alone says nothing about their patentability.

Referring now to paragraph 7, the Patent Office asserts that Congress could have provided patent protection for storylines, but has not done so. Applicant respectfully disagrees. Congress didn't want to worry itself over every little detail, so it simply passed a law that included as patentable “any new and useful process, machine, manufacture, or composition of matter...”. When the Supreme Court interpreted Congress' intention to include as patentable subject matter “anything under the sun that is made by man,”³ Congress shrugged its huge Congressional shoulders and acquiesced. Thus, Applicant asserts that Congress did, indeed, provide patent protection for storylines, even if the specific application to fictional storylines hadn't occurred to anyone in Congress before now. Of course, by the same token, the fact that providing patent protection to living organisms, software, and business methods probably hadn't occurred to anyone in Congress until the time of *Chakrabarty* didn't preclude such inventions from patentability.

The last sentence of paragraph 7 also includes a sweeping generalization that begins the diatribe of paragraphs 8-15 – namely that storyline patents “would be completely contrary to the intent of the patent law.” Applicant vehemently disagrees. Applicant asserts that the intent of patent law is to incite inventors to invent and to

³ *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

publish their inventions by offering them a limited time exclusive right to their inventions. In other words, the intent of patent law is to enrich the public through a quid pro quo exchange with inventors. Applicant asserts that patents on fictional storyline methods⁴ serve this intent as well as patents on any other invention. If the Examiner questions whether there is a dearth of fresh fiction in our modern age, he is invited to turn on his television. If patents on new engines incite engine inventors to invent better engines that will enrich the public, why won't patents on new storylines incite storyline inventors to invent better storylines that will enrich the public? No meaningful distinction has yet been made between engine inventions, software inventions, storyline inventions, or any other inventions, that would explain why patents on one set are beneficial to the public and patents on another are detrimental.

Paragraph 8 makes a startling assertion: that "Storylines may be changed, but not improved." Applicant has interpreted this statement in two ways, and will rebut both.

- In one interpretation of this statement, the Examiner suggests that new storylines can never be created. Various plot elements can be shuffled around, but storylines can never be improved because there is never anything new about them. While Applicant disagrees, this is a question of novelty and nonobviousness under Sections 102 and 103, and has nothing to do with whether storyline methods are patentable subject matter.
- In another interpretation of this statement, the Examiner suggests that you cannot "improve" storylines because none are qualitatively any "better" than any other. But this is not the test of patentability. An invention need not be any "better," more valuable, more salable, or more beneficial to the public to be patentable.⁵

⁴ Applicant does not and never has suggested that fictional storylines in the abstract are patentable. Rather, methods of relaying or implementing a storyline are patentable subject matter. Further, information-containing substrates, such as books and DVDs, are patentable subject matter to the extent that the printed matter doctrine does not preclude software-containing substrates from patentability. The legal precedent in this latter area is muddled and confused, as pointed out in Applicant's paper *Software, Components, and Bad Logic: Recent Interpretations of Section 271(f)*, 87 J. Pat. & Trademark Off. Soc'y 493 (2005).

⁵ See, e.g., *Lowell v. Lewis*, 15 F.Cas. 1018 (D. Mass., 1817), in which the court held that a pump need not be better than an prior art pump to be patentable.

Paragraph 10, of course, strikes at the heart of the Examiner's argument, specifically the mind-blowing proposition that patents curtail the freedoms of others, and that patents on storyline methods may prevent some authors from utilizing the same storyline for a limited time. Applicant agrees! Patents, for the limited time exclusive rights they offer to inventors, do in fact exclude use of a patented invention by others, without the patentee's permission, for a limited time. Applicant fully agrees that such an exclusive right can and often will prevent others from acting in certain ways.

However, playing the Devil's Advocate for one moment, Applicant suggests that maybe, just maybe, such an argument applies to the entirety of patent law. After all, the essential point of patent law is to allow patentees to exclude others from making, using, selling, offering to sell, and importing their claimed inventions! (35 U.S.C. 271.) It is indisputable that a patent on a new, high-efficiency internal combustion engine may curtail the freedoms of some automobile manufacturers to use the patented invention.

Why not, then, eliminate all patents today? Congress probably has authority to do so – tempered, of course, by the Constitution's "takings" clause. Without any patents, every bit of published knowledge known today would be freely available for use by anyone and everyone. Prices of products would plummet, as no patent license fees would need to be paid. Imagine how happy our nation's senior citizens would be to purchase prescription drugs for a tiny fraction of their current costs!

While eliminating patents would certainly increase the public's wealth initially, the benefits would be short-lived. Without patents, private research and development would significantly die, except for those activities that could be hidden as trade secrets. In a sentence, private innovation – more specifically, publication of private innovation – depends on the ability of inventors to obtain exclusive rights. In any event, whether or not the whole "no patents = no innovation" argument is persuasive is irrelevant. The point is that Congress is persuaded by the argument and has passed the current patent laws accordingly.

The purpose of storyline patents – like patents on any invention – is not to stifle innovation, but to arouse it. By offering storyline inventors a limited time exclusive right to their inventions, they will be incentivized to invent new, interesting, exciting forms of entertainment that currently do not exist. The public would "pay" them this limited right

in exchange for wholesale appropriation in (at most) 20 years after the filing of a patent application.

But doesn't 20 years seem like a long, long time? Isn't this a bad deal for the public? First, this is Congress' decision, not the Patent Office's. Second, what is the useful life of a patented microprocessor? Perhaps a few years? By the time the patent expires, the entire useful life of the invention will have expired with it. But what is the useful life of a great storyline? The entire future of humanity. It appears to Applicant that the public gets a far better deal by offering 20-year patents on storyline methods than 20-year patents on microprocessors.

In short, if the Patent Office's position is that creativity will ultimately be stifled by storyline patents, then it must also find that creativity will ultimately be stifled by all patents.

Paragraph 10 offers the example of *Moby Dick* and *Narrative of the Most Extraordinary and Distressing Shipwreck of the Whale-Ship Essex* to indicate how storyline patent exclusivity would reduce creativity. First, the choice of these examples is akin to choosing *Romeo and Juliet* as an example. Applicant's email inbox is full of irate members of the lay public who are sincerely scared that every existing storyline, even the simplest and most exhaustively used, will be violently thrust out of the public domain should storyline patents be found allowable. Imagine, for example, our nation's founders trying to explain to the lay public why they should not worry about patents on chairs, wheels, and fire. It must be understood – and any reasonable discussion of the patentability of storyline methods must acknowledge – that only new and nonobvious storylines satisfying Sections 102 and 103 would be patentable. There is nothing about *Moby Dick* that would have made it patentably distinguishable from prior art in 1851. In other words, even with the allowability of storyline method patents, there is absolutely nothing to prevent authors from creating profoundly original expressions of storylines already existing in the public domain.

However, assume that an invention, such as a new automobile engine, does not currently exist in the public domain. The Patent Office would presumably be happy to award the inventor a patent, assuming the invention satisfied other conditions for patentability, even though the patent would indeed exclude lots of very capable, creative,

innovative automobile designers from expressing themselves in the designs of new automobiles utilizing the patented engine. Why does this sort of restriction not concern the Patent Office, while restrictions in storyline methods do? In both cases: a) an inventor is motivated by a robust patent system to conceive of something new and nonobvious; b) a creative person wishes to express herself using the new invention; and c) the creative person is foreclosed from using the invention without the inventor's permission until the patent expires. While Applicant considers himself reasonably intelligent, he has tried very hard – often drinking several cups of coffee and focusing intently – and simply cannot see any meaningful distinction between engine patents and storyline method patents as it regards public policy and the intent of patent law. If Examiner wishes to further elucidate this point, Applicant kindly requests a few minutes to brew another pot of coffee.

In paragraph 11, the Patent Office suggests that storylines shouldn't be patentable because writing a book or script is more "difficult and time consuming" than writing a patent application. After all, Applicant's paltry 18 pages of patent application, according to the Patent Office, hardly merit any protection, much less patent protection. While interesting, the argument fails for several reasons.

First, the value of an invention is unrelated to the length of the specification needed to describe it. The Patent Office would unlikely suggest that a future cure for AIDS or cancer, were it disclosed in an 18-page patent application, would be any less valuable than an exciting new toothbrush disclosed in a 200-page patent application.

Second, the Patent Office is attempting to compare apples to oranges, which according to the court in *Apples v. Oranges*⁶, "cannot be compared." An inventor creates inventions. A writer creates writings. You cannot judge an inventor by his writings, and you cannot judge a writer by his inventions. While it might be easier to write an 18-page description of an invention than it is to write a novel, the inventor's contribution to the world was in the invention, not in the description of the invention! In fact, because many inventors hire patent agents or attorneys to write their patent applications, many inventors don't write any description of their inventions! Does this make their contributions less

⁶ This case never actually happened.

worthy than those of Herman Melville, who was able to write very long fictitious accounts about a whale? Certainly not.

Applicant is the inventor of a patented rocket and rocket engine pump (U.S. Patent No. 6,499,288). To Applicant's dismay, he has never actually been capable of building a complete, manned, suborbital rocket utilizing this patented rocket engine pump. That's right. Applicant admits the sad truth – he is incapable of designing and producing a complete, manned, suborbital rocket utilizing his patented rocket engine pump. For one, he's not a skilled designer. For another, he doesn't have millions of dollars lying around for such an endeavor. The point is that Applicant's contribution wasn't in designing and producing a final embodiment of the invention, but in conceiving of the invention and then in publishing a description that will enable other people (those of "ordinary skill in the art" who also "possess boatloads of cash") to make and use the claimed invention.

Inventors are rewarded by patent law for inventing. Inventors do not have to be skilled designers, competent manufacturers, savvy businesspeople, or anything else. They just have to invent. By requiring Applicant to be a skilled storyteller before awarding him a patent is akin to requiring an engine inventor to be a skilled machinist before awarding him a patent. Such "requirements" can be found nowhere in statute or case law. Having no legal foundation, they cannot be applied to the present case.

As for whether it would be "more profitable to write patent applications than it would be to write actual stories," the Patent Office may be understating the amount of inventive effort required of a storyline inventor to conceive of new, nonobvious storylines that would satisfy Sections 102 and 103. For what it's worth, as anecdotal evidence, Applicant found it just as difficult to conceive of his patent-pending storylines as his patented rocket engine pumps.

Referring now to paragraph 12, the Examiner has thoughtfully and meticulously criticized the whole U.S. patent system! In a footnote, the Examiner even recognizes this prickly pear, but states that he will not "join this debate," which of course sounds suspiciously like people who state, "I don't want to impose my point of view on you, but if you ask *my* opinion...". At this very moment, to use the slightly modified words of the Examiner in paragraph 12, there is "an incentive for would-be [inventors] to flood the

Office with applications for [rocket engine] patents in hopes that some [rocket engine designer] is out there actually doing the work of creating a [rocket engine] from which the applicant could profit.” Why wasn’t such an argument the basis for rejection of Applicant’s rocket engine pump claims in U.S. Patent No. 6,499,288? I suspect the answer is that the Patent Office does not require inventors to design, build, and commercialize their inventions. Rather, the Patent Office only requires inventors to invent and publish – and rewards them for this effort by granting limited time exclusive rights. In fact, if one were to replace words like “writer” and “story” with words like “inventor” and “rocket engine” in Examiner’s analysis in paragraphs 12-14, one would find a very compelling argument for the abolition of the entire patent system! Compelling as it may be, Congress has already considered these arguments and has decided that the benefits of a robust patent system outweigh its detriments.

As a sidenote, if the Patent Office is actually deeply concerned that major corporations will fall prey to the whims of every independent patentee, it is not familiar with the Not-Invented-Here syndrome, by which many American companies will refuse even to license an issued patent that they clearly infringe! What the Office Action completely fails to acknowledge is the present incentive for parasitic corporations to freely steal and use others’ storylines without providing any modicum of remuneration or recognition to their true inventors. Poor little motion picture studios? Applicant thinks not.

Paragraph 13 makes the bold proposition that “Undoubtedly, the effect [of storyline patents] would be that fewer literary works would be created.” Undoubtedly? Applicant respectfully submits that reasonable people could reasonably doubt the Office Action’s assertion that storyline patents would necessarily result in fewer literary works being created. The Patent Office’s argument rests on the following hypothetical plot:

- Joe Inventor invents a storyline.
- Joe Inventor, who is an inventor and not a particularly great writer, writes a novel based on the storyline.
- Just before he publishes his novel, he discovers Storyline Patents, and decides to patent his storyline before publishing his novel.

- As a result, only licensees of his patent may write novels based on his storyline, causing fewer novels to be written than in the absence of Storyline Patents.

This plot might even carry some weight, except that it neglects the distinct possibility of the following plot:

- Joe Inventor invents a storyline.
- Joe Inventor, who is an inventor and not a particularly great writer, knows that if he writes a novel, only his particular expression of his storyline will be protectible by copyright and that the underlying storyline could be stolen by anyone else. Joe therefore decides against publishing a novel based on his storyline.
- NOBODY may write novels based on Joe's storyline, because it was never published and is thus unknown.

IF THE PATENT OFFICE BELIEVES THAT PATENTS STIFLE CREATIVITY, THEN THE PATENT OFFICE OUGHT TO STOP ISSUING PATENTS. Patents, by their very nature, curtail the freedoms of others. But that does not imply that fewer goods get to the public. Quite the contrary. By incentivizing inventors – rocket engine inventors, toothbrush inventors, storyline inventors – to invent and publish, more wealth is transferred to the public than in the absence of such incentives. Once again, Applicant need not belabor this point, as it is an argument already thoroughly accepted by Congress.

Paragraph 14 begins with an argument that is, again, best rebutted by showing its ready application to clearly patentable endeavors: “People of little or no [machining] skill would be able to patent [machines].” That’s right! – because patent law aims to reward inventors, even if they are poor machinists, designers, manufacturers, etc.

Finally, paragraphs 15-17 in the Office Action discuss various First Amendment concerns. First, the argument that “storylines are not technology” is irrelevant since, as will be discussed later, there is no “technology requirement” in patent law. Next, the Office Action suggests that U.S. law already provides intellectual property protection for

storylines: namely, copyright. But this is just “patently” false! Yes, we can have a lively debate about the patentability of storylines. Yes, we can argue all day about public policy and the pros and cons of storyline patents. But let’s please not delude ourselves for one second that copyright law provides any protection whatsoever for storylines!

Copyright law protects particular expressions of storylines, but does not protect storylines. If storyline methods are ultimately found to be not patentable, Applicant can only hope that the public is not fooled into believing that copyright law will sufficiently protect their storylines. Finally in paragraph 15, the Patent Office suggests that Congress has decided on a “bifurcated [there’s that word again!] system of intellectual property laws with the patent laws protecting technology and copyright laws protecting expression.” But this argument fails on several levels:

- Where do storylines fit in? Storylines are not expression *per se*. They are inventions.
- This “bifurcated” system only means that there are two types of IP protection, not that any given creation can only be protected by one type. After all, a particular embodiment of patented software is clearly copyrightable. Further, consider the amusing example of U.S. Patent No. 6,213,778 to Cohen, which to the best of Applicant’s understanding is a patent on a method of creating art – clearly copyrightable – by dipping a baby’s bottom in a bucket of paint and then pressing it (the baby’s bottom) onto paper.⁷
- There is no “technology requirement” for patentability, as discussed below.

The Imaginary Technological Arts Requirement

At least one commentator has suggested the continued viability of the so-called “technological arts requirement,” whereby courts in construing the subject matter

⁷ Applicant understands that the Patent Office may have regrets about issuing this particular patent. All joking aside, many (if not all) issued patents can be embodied in a copyrightably distinct expression. That clearly makes them subject to both forms of IP protection, not just one or the other.

requirement have “confined their liberal views to the realm of technology.”⁸ What is “nontechnology” is anybody’s guess, but this commentator suggests that works of fiction, music, and “business methods not implemented with computer technology” may be unpatentable “nontechnology.”⁹ Desperate for evidence, this commentator cites a dissenting opinion in binding case law to support the contention that creative works can never be patentable technologies.¹⁰ Another commentator has opined that creative works, such as movies, “satisfy the . . . tests for being ‘useful,’ yet would not be considered to be patentable subject matter,” because “no one would imagine obtaining a patent” for such creative works.¹¹ In other words, this commentator suggests simply that the creative nature of creative works, coupled with the lay public’s suspicion that such works are not patentable subject matter, effectively precludes their patentability in spite of being “useful.”¹² However, the following analysis aims to demonstrate that while many patents relate to what a lay person may deem “technology,” such a relationship is not a prerequisite to patentability. It will be shown that not only is there no technological arts requirement, there is no ready means for compartmentalizing creations into patentable technology and non-patentable non-technology.

i. The Board of Patent Appeals and Interferences Has Explicitly Dismissed Any Technological Arts Requirement.

Carl A. Lundgren filed an application claiming a business method for compensating a business manager.¹³ The Patent Office rejected the application on the grounds that the claimed invention was directed to “an economic theory expressed as a mathematical algorithm without the disclosure or suggestion of computer, automated

⁸ See, e.g., *Recent Development: Pure Fiction: The Attempt to Patent Plot*, 19 HARV. J.L. & TECH 231, 235 (2005) [hereinafter *Pure Fiction*].

⁹ *Pure Fiction*, *supra* note 8, at 237-8.

¹⁰ *Id.* at 238.

¹¹ Robert A. Kreiss, *Patent Protection for Computer Programs and Mathematical Algorithms: The Constitutional Limitations on Patentable Subject Matter*, 29 N.M.L. REV. 31, 62, 65 (1999).

¹² Amazingly, the (now clearly false) assumption that “no one would imagine obtaining a patent” for fictional movies is used as evidence for the author’s contention that a “technological arts” requirement exists and precludes the patentability of movies.

¹³ *Ex parte* Carl A. Lundgren, No. 2003-2088, 76 U.S.P.Q.2d 1385, 1385 (Bd. Pat. App. & Int. 2005).

means, apparatus of any kind.”¹⁴ The patent examiner held that the claims were thus non-statutory for failing the so-called “technological arts” test under 35 U.S.C. § 101.¹⁵

Upon a request for reconsideration and rehearing, the Board of Patent Appeals and Interferences (BPAI) reversed the Examiner’s rejection, on the basis that the patentable subject matter test requires that a process claim “produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle.”¹⁶ The Board pointed out that a process is statutory subject matter unless it is a law of nature, physical phenomenon or an abstract idea.¹⁷ The Board ruled that there is not now, nor ever has been, a separate “technological arts” patentability test under 35 U.S.C. § 101.¹⁸ The Board dismissed the contention that a new technological arts test is required by any binding decision¹⁹ and specifically pointed to the Supreme Court’s decision in *Gottschalk v. Benson*²⁰ as evidence that the Court was aware of such a test and had not adopted it.²¹

While the *Lundgren* decision certainly expanded the scope of business method patents, its reasoning precludes the application of a “technological arts” requirement to any field of endeavor.

ii. No Technological Arts Requirement Could Be Legally Cognizable.

Per *Lundgren*, there is no “technological arts” requirement for statutory subject matter. Nevertheless, to the extent that a BPAI decision is not binding on the Federal Circuit or Supreme Court, neither is likely to invent such a requirement. This is because, for patentability purposes, there is and can be no legally cognizable “technology” difference between an unquestionably patentable device and a device such as a DVD

¹⁴ *Id.* at 1386.

¹⁵ *Id.* at 1387.

¹⁶ *Id.* at 1386.

¹⁷ *Id.* at 1387.

¹⁸ *Id.* at 1388.

¹⁹ See *id.* at 1387 (citing *In re Musgrave*, 431 F.2d 882, 893 (CCPA 1970), *In re Toma*, 575 F.2d 872, 877–78 (CCPA 1978), and *Ex parte Bowman*, 61 U.S.P.Q.2d 1669 (Bd. Pat. App. & Int. 2001) (non-precedential)).

²⁰ 409 U.S. 63 (1972).

²¹ *Lundgren*, 76 U.S.P.Q.2d at 1387.

player loaded with a DVD that creates a fictitious, creative virtual reality emulating the method implemented by the patentable device.

Many people may fail to understand the nature of technology and be tempted to artificially dichotomize fields of endeavor as either creative or technological. One who is unfamiliar with science and engineering might attempt to classify technology as that which involves the use of screwdrivers, jackhammers, transistors, chemicals, and so forth, and therefore limit the scope of patentable subject matter. We suggest that technology is no more than intentional changes²² to the human condition. While until relatively recently in human history many of these changes were effected with mechanical and electrical apparatus—the very epitome of patentable subject matter—there are several dangers to so limiting the word “technology.” For example, one may be tempted to restrict patentable subject matter to “technology” that does not entertain or “technology” that entertains only in prescribed ways such as by using mechanical gears and engines. A movie thus could not be patentable either because it entertains or because it entertains in a manner that is insufficiently technological. Each such restriction is seriously problematic.

First, there can be no legally cognizable technology requirement that hinges on whether an invention entertains. During the Industrial Revolution, many mechanical devices were invented that increased productivity and thus provided more people their basic needs by feeding, clothing, and housing them. For example, Eli Whitney’s invention of the cotton gin in the late 18th century helped to proliferate the availability and use of cotton clothing. As technology improved—the human standard of living improving with it—technology evolved more to improve human comfort, not just prospects for bare survival. The invention of modern air conditioning in the early 20th century by Willis Carrier is clearly “technology,” even though air conditioning is a modern convenience that is rarely if ever required for human survival. Finally, as technology improved the human condition to a point at which people could live healthily and comfortably in spite of an abundance of free time, technology evolved to fill that comfort-induced void with entertainment. Pleasure boats, recreational vehicles, small

²² In most cases, the intention is probably toward improvement, although one might argue that much technology (such as weapons) was intended to worsen the human condition.

airplanes, television, radio, video games, CD and DVD players and every piece of equipment for every hobby, sport and recreation imaginable are all forms of technology, not a single one of which is required for human survival or comfort. Whether a device has a primary purpose or use of more efficiently harvesting agricultural products or of entertaining the user is and should be irrelevant for purposes of patentability. Indeed, the United States Patent and Trademark Office has not hesitated to issue thousands of patents all relating exclusively to entertainment: games,²³ sports moves²⁴ and even methods of creating art.²⁵ It follows that the mere fact that fictional storylines entertain is not enough to classify a storyline method claim as a form of unpatentable non-technology.

Second, there can be no legally cognizable technology requirement that hinges on how an entertaining device or method entertains. Consider a new thrill ride, such as a roller coaster at a major theme park. The ride may include thousands of gears, pulleys, chains, hinges, bolts, motors, electrical actuators, relays, and so forth—i.e., patentable subject matter by any definition. Next, consider a virtual reality ride that accurately but much less expensively and with far less risk to the rider mimics the thrill ride. The virtual reality ride consists of a visual display, audio speakers, and a computer processor executing software programmed to create a virtual reality via the display and speakers that emulates the actual thrill ride. The judiciary in *AT&T Corp. v. Excel Commc'ns, Inc.*²⁶ realized that, for patentability purposes, software performing a patentable process is indistinguishable from a machine performing that process. Consequently, the virtual reality ride is patentable subject matter alongside the actual thrill ride.²⁷ Further, that the virtual reality ride is patentable “technology” has nothing to do with whether it entertains by means of gears and pulleys or by LCD displays and microprocessors.²⁸

²³ See, e.g., Game for two people in a relationship and method of play, U.S. Patent No. 6,631,904 (filed March 21, 2001) (issued Oct. 14, 2003); Dinner party conversation generator, U.S. Patent No. 6,464,222 (filed March 21, 2000) (issued Oct. 15, 2002).

²⁴ See, e.g., Method of putting, U.S. Patent No. 5,616,089 (filed March 29, 1996) (issued Apr. 1, 1997).

²⁵ See, e.g., Painting kit and related method, U.S. Patent No. 6,022,219 (filed Dec. 18, 1998) (issued Feb. 8, 2000). See generally John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139 (1999).

²⁶ 172 F.3d 1352, 1358 (Fed. Cir. 1994).

²⁷ This does not imply, of course, that the virtual reality ride is patentable, for it may fail other statutory requirements—e.g., the virtual ride may have been obvious in light of existing prior art, a failure under 35 U.S.C. § 103.

²⁸ If one attempts to argue that it is the very use of LCD displays and microprocessors that puts the virtual reality ride in the realm of patentable technology, the same argument would clearly apply to fictional

Now consider a fictional motion picture that includes in its plot and corresponding cinematography indications of a character riding such a thrill ride. For example, the movie may include video images of the character riding the thrill ride from the character's perspective.²⁹ In what legally cognizable way does this portion of the movie differ from the aforementioned patentable virtual reality ride? It doesn't. Thus, to the extent that a DVD containing a movie having a fictional plot is configured to cause a machine such as a DVD player to generate a virtual reality—and every movie does—it is patentable subject matter.

A virtual reality machine is clearly patentable subject matter, even though it may not be patentable unless the method it executes is both novel and nonobvious under 35 U.S.C. § 102 and § 103, respectively. Further, the same virtual reality machine creating different virtual realities by executing different software embodiments may be patentable for each different software embodiment. Analogously, a television connected to a DVD player loaded with a DVD is a virtual reality machine that is patentable subject matter under 35 U.S.C. § 101, even if the machine may be unpatentable for failing the novelty and nonobviousness requirements. Further, the same machine creating different virtual realities by playing different DVDs may be patentable for each storyline embodiment in the different DVDs.

In other words, if a virtual reality ride is patentable “technology,” a motion picture is no less patentable “technology” simply for introducing more elaborate plot elements into the ride—i.e., for making the ride a subset of the entire plot. A movie is a virtual reality, as anyone who has ever cried in a movie theater can attest to, and if a virtual reality ride is patentable subject matter, so is a motion picture.

Moving on, paragraphs 16 and 17 hit on a fascinating issue – freedom of speech, prior restraints, and so forth. Good stuff. The problem is that the Patent Office has mistakenly assumed that Constitutional restraints apply *carte blanche* to individual citizens. With very few exceptions, the Bill of Rights applies only to governmental

motion pictures, which are displayed by means of projectors, electronic displays, electric speakers, microprocessors, DVDs and DVD players, VHS tapes and players, film rolls, and so forth.

²⁹ This example is reminiscent of the scene in the motion picture *Vacation* in which fictional character Clark Griswold and his WallyWorld hostage arrive at and subsequently fall from the peak of a roller coaster. *VACATION*, Nat'l Lampoon (1983).

action, not to private action. Further, every patent restricts expressive freedom to some extent, such as where a person desires to use a patented invention to express himself. A more detailed analysis of the problems with a First Amendment rejection follows.

First Amendment Concerns

Patents are strange animals. Debates rage as to whether they are forms of property, monopoly, or private regulation.³⁰ Like property, a patent allows a patentee to exclude others from using his patent.³¹ Unlike property, a fact often confused by the lay public, a patent does not give the patentee the right to practice his own invention, in part because use of his invention may infringe another's patent.³² If patents are property of some sort, they assume the form of a property-based legal theory at times, allowing a patentee to seek preliminary injunction in a court of equity to prevent future infringement.³³ They also assume the form of a liability-based legal theory at other times, only allowing a patentee to seek remedy at law after infringement if a preliminary injunction would have amounted to an impermissible prior restraint.³⁴ Professor Thomas of Georgetown University Law Center argues that since patents are drafted by private individuals, patents are more akin to federal regulation yielding "causes of actions in tort that applicants write for themselves."³⁵ In any event, a patent gives a patentee, a private actor, the right to prevent others from making, using, selling, offering to sell, and importing the claimed invention.³⁶ Whether seen as a form of property, monopoly, or private regulation, a patent gives a patentee the right to prevent others from acting and,

³⁰ See, e.g., John R. Thomas, *The Responsibility of the Rulemaker: Comparative Approaches to Patent Administration Reform*, 17 BERKELEY TECH. L.J. 727, 741 (2002).

³¹ 35 U.S.C. § 271(a) (2006).

³² See, e.g., Alison Marcotte, *Concurrent Protection of Products by Patent and Trade Dress: Use of the Functionality Doctrine in Marketing Displays, Inc. v. Traffix Devices, Inc.*, 36 NEW ENG. L. REV. 327, 357 (2001).

³³ Andrew Beckerman-Rodau, *Prior Restraints and Intellectual Property: The Clash Between Intellectual Property and the First Amendment from an Economic Perspective*, 12 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 1, 11-18 (2001).

³⁴ *Id.* at 26-31.

³⁵ Thomas, *supra* note 30. Applicant heartily disagrees. A patent is more analogous to a federal law, drafted by a private citizen and skilled attorney, mailed to his U.S. Representative as a mere suggestion, and subsequently proposed, amended, and passed as a bill. The House passed the bill—not the citizen—although the citizen certainly helped.

³⁶ 35 U.S.C. § 271(a).

sometimes, speaking. To what extent would free speech guarantees of the First Amendment clash with storyline patent rights?

A. Patents and the State Actor Doctrine

Commentators have asserted that “the initial grant and the enforcement of storyline patents in specific instances would almost certainly violate the First Amendment’s free speech guarantee”³⁷ without any recognition (or perhaps realization) that the First Amendment’s guarantee of liberty in speech applies, with few exceptions, only against the government.³⁸ For example, while political speech is arguably the most protected First Amendment speech, a trespassing speaker being forcefully ejected from private property would likely find resort to the Constitution unproductive, no matter how politically charged his speech. In other words, the First Amendment does not provide a *carte blanche* against which any entity may speak at any time, particularly where private property interests are concerned. Whether or not a patentee is limited by First Amendment principles rests largely on the state actor doctrine: “[w]hen the nominally private party performs a traditional government function, is controlled by a state entity, or engages in conduct that has been encouraged or substantially facilitated by the government, then the constitutional guarantees will apply.”³⁹ Currently, no court has addressed the applicability of the state actor doctrine to patents, a prerequisite to barring issuance or enforceability of a storyline patent on constitutional grounds.

Professor Thomas discusses the state actor doctrine as applied in three cases in which a private entity was granted a license from the government.⁴⁰ In *Moose Lodge No. 107 v. Irvis*, the Court held that the mere granting of a state liquor license to a private club does not convert the licensee into a state actor.⁴¹ In *Jackson v. Metropolitan Edison Co.*, the Court held that even a heavily-regulated utility enjoying monopoly status does not act as the state.⁴² Finally, in *San Francisco Arts & Athletics, Inc. v. United States*

³⁷ *Pure Fiction*, *supra* note 8, at 242.

³⁸ John R. Thomas, *Liberty and Property in the Patent Law*, 39 HOUS. L. REV. 569, 592 (2002).

³⁹ *Id.* at 592–93 (footnotes omitted).

⁴⁰ *Id.* at 597–99.

⁴¹ 407 U.S. 163, 175–78 (1972).

⁴² 419 U.S. 345, 358–59 (1974).

Olympic Committee, the Court held that Congress' transfer of ownership of the word "Olympic" to a private corporation did not transform the entity into a state actor.⁴³ Professor Thomas concludes that because "[p]atentees are subject to considerably less government entwinement than any of these other entities," a private patentee is likely not a state actor.⁴⁴ While there is a line of cases suggesting a more liberal view of the state actor doctrine where more compelling rights violations are involved (such as a libel action for political speech against a state official⁴⁵ and racial discrimination⁴⁶), the decision to apply the state actor doctrine to a particularly difficult patent case may infect every future patent enforcement suit "with the entire panoply of constitutional defenses."⁴⁷ Therefore, a court would most likely view a patent as a private-property right akin to enabling a real-property owner to eject a trespasser who is loudly denouncing the government, in spite of the trespasser's compelling rights to freedom of political speech.

The aforementioned commentators miss the boat entirely by (1) ignoring the state actor doctrine and (2) citing *Harper & Row Publishers, Inc. v. Nation Enterprises*⁴⁸ as standing for the proposition that the First Amendment tempers intellectual property rights (specifically, the Copyright Revision Act of 1976) "by permitting free communication of facts while still protecting an author's expression."⁴⁹ In *Harper*, the Court repeatedly mentions "First Amendment values" while holding that unauthorized use of President Ford's memoirs was not a "fair use" under Section 107 of the Copyright Act.⁵⁰ However, in spite of First Amendment-style dicta and consistent with the fact that the state actor doctrine was not applied, the Court's decision was grounded in the Copyright Act—not

⁴³ 483 U.S. 522, 544 (1987).

⁴⁴ Thomas, *supra* note 38, at 598 (Professor Thomas also notes the surprising conclusion that a patentee could, consistent with the Constitution, limit speech in a manner impermissible to the government.).

⁴⁵ See *N.Y. Times Co. v. Sullivan*, 376 U.S. 254, 283 (1964) (holding that the First Amendment bars a libel action against a newspaper for publishing an advertisement about a public official acting in his official capacity).

⁴⁶ See *Shelley v. Kraemer*, 334 U.S. 1, 20 (1948) (holding that judicial enforcement of private racially-restricted covenants constitutes state action). *Shelley*'s holding has been considerably narrowed by subsequent decisions and its precedential value has been limited. Thomas, *supra* note 94, at 602. Further, both *New York Times Co.* and *Shelley* were decided amidst a nation torn by politics of race. The judicial determination of the viability of storyline patents, on the other hand, is unlikely to be so influenced.

⁴⁷ Thomas, *supra* note 38, at 606.

⁴⁸ 471 U.S. 539 (1985).

⁴⁹ *Pure Fiction*, *supra* note 8, at 243 (quoting *Harper & Row Publishers, Inc.*, 471 U.S. at 556).

⁵⁰ Thomas, *supra* note 38, at 600.

the First Amendment.⁵¹ The Court refused to allow the First Amendment to “expand[] the doctrine of fair use to create what amounts to a public figure exception to copyright.”⁵² In other words, not only is there a dearth of binding case law holding that a patentee is a state actor restricted by the First Amendment, but case law actually suggests the opposite.

B. The Generally-Accepted Presumption that Patent Rights are not Limited by First Amendment Rights

While the specific issue of whether or not a patentee is a state actor restricted by constitutional free speech guarantees has never been litigated, and even if the state actor doctrine is momentarily (but impermissibly) ignored, the following analysis aims to demonstrate that Congress, the Judiciary, and private entities all act under the apparently generally-accepted presumption that a patentee is not so restricted.

i. Section 271 Includes Restrictions on Otherwise-Protectable Commercial Speech

While patent law is not ordinarily perceived to involve restricting speech or expression, the Patent Act specifically limits at least some commercial speech by granting a patentee the right to prevent others from offering to sell a patented invention.⁵³ In *DeSantis v. Hafner Creations, Inc.*,⁵⁴ the district court held that a magazine advertisement—which is commercial speech ordinarily protected under the First Amendment⁵⁵—for an allegedly-infringing gun holster was an infringing offer for sale actionable under Section 271(a).⁵⁶ Further, the Federal Circuit held in *3D Systems, Inc. v. Aarotech Laboratories, Inc.*,⁵⁷ that mailing letters to four companies describing products for sale and their prices was an infringing offer for sale, whether or not the letters created

⁵¹ *Harper & Row Publishers, Inc.*, 471 U.S. at 559–60; Thomas, *supra* note 38, at 600.

⁵² *Harper & Row Publishers, Inc.*, 471 U.S. at 559–60; Thomas, *supra* note 38, at 600.

⁵³ See 35 U.S.C. § 271(a) (2006).

⁵⁴ 949 F. Supp. 419 (E.D. Va. 1996).

⁵⁵ See, e.g., Beckerman-Rodau, *supra* note 33, at 34.

⁵⁶ *DeSantis*, 949 F. Supp. at 426.

⁵⁷ 160 F.3d 1373 (Fed. Cir. 1998).

a contractual offer.⁵⁸ Thus, Section 271(a) ensures a patentee the right to curtail certain otherwise-protected commercial speech—namely commercial speech amounting to an offer for sale of a patented invention.⁵⁹ First Amendment defenses were never raised in these cases. Apparently, asserting that a privately-acting patentee is a state actor subject to First Amendment limitations sounds ludicrous even to defendants.

ii. The Patent Office Regularly Issues, and Private Entities Regularly Enforce, Patents that Inherently Restrict Speech

Methods of creatively painting may be patentable.⁶⁰ In addition, methods having the steps of querying a respondent⁶¹, instructing a person to act⁶², or engaging others to answer and discuss open-ended questions⁶³ may be patentable. One issued patent relating to home improvement includes a claim step of “presenting the design ideas to a client.”⁶⁴ “[M]ethods of teaching language, music, vocabulary acquisition, dialogue writing, and mathematics” have been patented in various forms.⁶⁵ In each of these patents, execution of the claimed invention does not merely include the possibility of speech—it *requires* speech or expression in some form. In some cases the invention requires expression which, when fixed in a tangible medium of expression,⁶⁶ is protected under the Copyright Act.⁶⁷

While the Patent Office is not the final arbiter to determine if the First Amendment applies to patents, it acts as a rulemaking agency of the federal government

⁵⁸ *Id.* at 1379; see Beckerman-Rodau, *supra* note 33, at 35.

⁵⁹ See Beckerman-Rodau, *supra* note 33, at 35.

⁶⁰ See, e.g., *Painting Kit and Related Method*, U.S. Patent No. 6,022,219 (filed Dec. 18, 1998) (issued Feb. 8, 2000).

⁶¹ See, e.g., *Method and Apparatus for Administering a Survey*, U.S. Patent No. 6,093,026 (filed July 6, 1998) (issued July 25, 2000).

⁶² See, e.g., *Character Assessment Method*, U.S. Patent No. 5,190,458 (filed Apr. 17, 1991) (issued Mar. 2, 1993).

⁶³ See, e.g., *Dinner Party Conversation Generator*, U.S. Patent No. 6,464,222 (filed Mar. 21, 2000) (issued Oct. 15, 2002).

⁶⁴ *Method for Designing and Illustrating Architectural Enhancements to Existing Buildings*, U.S. Patent No. 5,668,736 col.5 l.11 (filed Jan. 25, 1995) (issued Sept. 16, 1997).

⁶⁵ Thomas, *supra* note 38, at 590 (footnotes omitted).

⁶⁶ See 17 U.S.C. § 101 (2006).

⁶⁷ See 17 U.S.C. § 106 (2006).

charged with upholding the Constitution.⁶⁸ To the extent that the Patent Office regularly issues patents that are so intertwined with speech that use of the patents requires expression—and in many cases even copyrightably *creative* expression—it implicitly asserts that the First Amendment is not a concern to the patent system.

Furthermore, the following examples suggest that private litigants employing high-priced attorneys do not seem to think highly enough of the argument that the First Amendment is applicable to private patentees to argue it. In 2001, a federal court issued a restraining order prohibiting Juno Online Services, Inc. from practicing a patented method of competitor NetZero, Inc.⁶⁹ The patent, which claimed a method of displaying advertisements in floating windows,⁷⁰ is inherently and intimately intertwined with otherwise-protected commercial speech; First Amendment concerns did not arise, however.⁷¹

First Amendment concerns may be relevant, however, in evaluating a patentee's rights to the extent that a preliminary injunction could amount to an impermissible prior restraint. While the specific case has not yet arisen, working analogies are instructive on the conflict between the First Amendment and other intellectual property rights. For example, a company may recover against a defendant who unlawfully expropriates and disseminates a company's protected trade secrets; in other words, a citizen has no First Amendment right to freely speak such secrets.⁷² Nevertheless, prior restraints are considered so heinous a form of censorship, even when one has threatened to disseminate valuable trade secrets, that "courts generally do not allow preliminary relief that restricts free speech" because "[a]ny short-term restriction of free speech that might ultimately be adjudicated constitutionally protected speech is unacceptable to a court."⁷³ Applying this analogy to the patent arena, a defendant's appeal to the First Amendment is likely to be

⁶⁸ Thomas, *supra* note 38, at 613–14.

⁶⁹ Nancy Weil, *NetZero Suit Hits Juno with Restraining Order*, NETWORK WORLD, Jan. 8, 2001, available at 2001 WLNR 11763442.

⁷⁰ Communication System Capable of Providing User with Picture Meeting Characteristics of User and Terminal Equipment and Information Providing Device Used for the Same, U.S. Patent No. 6,157,946 col. 1 ll. 56–67 (filed Aug. 26, 1998) (issued Dec. 6, 2000). See also Thomas, *supra* note 38, at 589.

⁷¹ Thomas, *supra* note 38, at 589.

⁷² See, e.g., *Universal City Studios, Inc. v. Corley*, 273 F.3d 429, 458 (2d Cir. 2001) (holding that the First Amendment does not permit a person to publish secret DVD decryption software).

⁷³ Beckerman-Rodau, *supra* note 33, at 26–27.

successful, if at all, only on the question of a preliminary injunction preventing the defendant from speaking in an infringing manner.

iii. The Patentable and Copyrightable Nature of Software Teaches that Free Expression Fails to Restrict a Private Patentee's Rights

Software is often touted as enjoying the privileged status of intellectual property that may be protected under both patent and copyright law.⁷⁴ For example, a software patent claim might include an information-containing substrate configured to cause an appropriately-configured machine to execute the software's function. An actual embodiment of the software in the form of code (usually written in a modern programming language) is a fixation in a tangible medium of expression that is copyrightable.⁷⁵ In other words, the expression of the actual embodiment is copyrightable while the idea embodied on a physical substrate or apparatus is patentable. The dual nature of software protection is easily understood by recognizing that software, fundamentally a set of instructions,⁷⁶ is no more than information. In that respect, software is comparable to the information found in a copyrightable novel, song, or newspaper article.

However, like a novel, the information in software is subject to—and in fact at times actually requires—creative expression. If a novel is the creative embodiment of a raw plot, software is the creative embodiment of a raw function. More particularly, software is expression that is indeed protected by the First Amendment,⁷⁷ but it is also capable of private restriction via patents and copyrights.

In *Bernstein v. United States Department of State*,⁷⁸ a Ph.D. graduate student studying electronic encryption challenged the requirement that he obtain a license to publish encryption software, which was allegedly controlled by the Arms Export Control

⁷⁴ See, e.g., Mark H. Webbink, *A New Paradigm for Intellectual Property Rights in Software*, 2005 DUKE L. & TECH. REV. 12, ¶29 (2005).

⁷⁵ See 17 U.S.C. § 101 (2006).

⁷⁶ See generally Andrew F. Knight, *Software, Components, and Bad Logic: Recent Interpretations of Section 271(f)*, 87 J. PAT. & TRADEMARK OFF. SOC'Y 493, 494 (2005) [hereinafter *Software, Components, and Bad Logic*].

⁷⁷ *Universal City Studios*, 273 F.3d at 449-50.

⁷⁸ 922 F. Supp. 1426 (N.D. Cal. 1996).

Act.⁷⁹ He contended that the software was protected First Amendment speech and the Arms Export Control Act served as an impermissible prior restraint on this speech.⁸⁰ The district court agreed with Bernstein on the basis that “[t]he statutory language, along with the caselaw of numerous circuits, supports the conclusion that copyright protection extends to both source code and object code” and “[f]or the purposes of First Amendment analysis . . . source code is speech.”⁸¹ The court specifically rejected the contention that functionality reduces First Amendment protection by pointing out that “[i]nstructions, do-it-yourself manuals, recipes, even technical information about hydrogen bomb construction are often purely functional; they are also speech Like music and mathematical equations, computer language is just that, language, and it communicates information either to a computer or to those who can read it.”⁸²

Bernstein was directed to restrictions imposed by the federal government on First Amendment speech; software is a subset of protected First Amendment speech.⁸³ While *Bernstein* asserts that *all* software code (even object code⁸⁴) is protected First Amendment speech,⁸⁵ no court has ruled that these protections are applicable in limiting the rights of private copyright and patent holders attempting to recover for damages against an infringer, no matter how expressive or creative the infringing software is.

Software may itself be a *form* of expressive speech. For example, consider a security technology developer who patents software for encrypting information to prevent unauthorized copying. A rogue citizen, protesting the American regime of strong intellectual property protection, uses the patented software without a license to create and prolifically distribute decrypting software that overcomes the developer’s patented encryption scheme. The protestor’s software is itself political speech that infringes the developer’s patent. While this precise issue has never been litigated, common sense

⁷⁹ *Id.* at 1430–31.

⁸⁰ *Id.*

⁸¹ *Id.* at 1436.

⁸² *Id.* at 1435.

⁸³ *Id.*

⁸⁴ But see Patrick Ian Ross, III, *First Amendment c) Computer Programming Language: Bernstein v. United States Department of State*, 13 BERKELEY TECH. L.J. 405, 409–10 (1998) (arguing the insufficiency of the *Bernstein* court’s analogies between software and other speech, such as music). Further, for a hearty discussion on the distinction between software-as-function and software-as-expression, and whether or not software is speech for First Amendment purposes, see Dan L. Burk, *Patenting Speech*, 79 TEX. L. REV. 99 (2000).

⁸⁵ *Bernstein*, 922 F. Supp. at 1435.

instructs that the developer would be able to recover for patent infringement.⁸⁶ Patent law does not look to the *purpose* behind an infringer's act.⁸⁷ Unlike copyright law's fair use, educational, and other statutory-infringement exceptions,⁸⁸ such exceptions are notoriously absent from patent law. One who infringes a software patent for good reasons or bad, for profit or nuisance, for charged political propaganda or for fun, is still an infringer.

In addition, software may be the result of a primarily expressive *effort* – e.g., 99% creative and 1% functional—and nevertheless be fully protected under patent law. For example, because writing software is as much art as science, a particular computer function may be implemented by uncountably many software embodiments.⁸⁹ Software engineering students in the course of fully understanding this fact might engage in a coding competition in which the student who drafts the most complicated, convoluted, and confused code for a predetermined simple function wins. Yet, no matter how much creativity and expression were involved in such coding, the resulting software would infringe a patent if it executed the claimed method.⁹⁰

Finally, software may *include* otherwise-protected expressive speech without restricting a copyright or patent holder's rights. Consider a would-be infringer who includes otherwise-protected First Amendment speech, such as politically charged messages, between the lines of copyrighted or patented source code. To the dismay of the infringer who planned on bypassing the patent by invoking the First Amendment, patent law contains no statutory infringement exceptions.⁹¹ Moreover, the First Amendment is probably not a limitation on a software patentee suing for damage recovery.⁹²

⁸⁶ See, e.g., *Universal City Studios*, *supra* note 72, at 458. Patent issues did not arise in *Universal City Studios* because the encryption code was not patented. The Court had no trouble applying traditional American principles of strong intellectual property protection, however, to conclude that the First Amendment is not a loophole to justify the expropriation of an individual's intellectual property. See *id.*

⁸⁷ See 35 U.S.C. § 271(a) (2006).

⁸⁸ See, e.g., 17 U.S.C. § 107 (2006).

⁸⁹ Software is simply a set of instructions to cause an appropriately configured machine to execute a desired function. *Software, Components, and Bad Logic*, *supra* note 76, at 494. Intuitively, as there are many ways (i.e., sets of instructions) to make a peanut butter and jelly sandwich (i.e., the desired function), there are many possible software embodiments for any desired computer function.

⁹⁰ See 35 U.S.C. § 271(a).

⁹¹ 35 U.S.C. § 271.

⁹² See generally Thomas, *supra* note 92, at 588-606.

In essence, if software is speech for First Amendment purposes,⁹³ and it is also subject to private appropriation via both copyright and patent law,⁹⁴ common sense demands that the former not kill the latter. While some commentators seem bothered by the apparent conflict between the simultaneous protection and private restriction of certain speech,⁹⁵ their confusion (but probably not their indigestion) may be assuaged by recognizing that a private patent owner bringing a lawsuit to recover damages against an infringer is, as previously discussed, not a state actor restricted by the First Amendment.

C. Protected Speech Versus the Patent System

While binding case law suggests that—and government and private entities act as if—a patentee is not a state actor limited by the First Amendment, there is a far more persuasive reason that patentees should not be limited by the First Amendment: a binding decision that a patent owner is a state actor whose enforcement activities are trumped by any First Amendment concerns would all but annihilate patent rights. Essentially, any time a potential infringer dressed up a patented apparatus or method with a sufficient quantity of creativity, expression, or otherwise-protected First Amendment speech, he would avoid liability.

Consider, in the software arena, a would-be infringer who writes a fictional short story. The story is then fed to a creatively-designed compiler that converts the fictional story to object code that causes a computer to execute a patented method. Is the fictional story protectable First Amendment speech? Indubitably. For example, the United States would be prohibited from censoring or controlling publication of the short story based upon its content.⁹⁶ Nevertheless, if the First Amendment could trump the private patentee's rights to recovery for infringement, the protected story could, and presumably would, proliferate among those who used the story for the software code it contained, without any reward to the patentee. Similarly, consider the software pirate who inserts

⁹³ See *Bernstein*, 922 F. Supp. at 1435.

⁹⁴ See *Webbink*, *supra* note 74, at ¶29.

⁹⁵ See, e.g., Mark A. Lemley & Eugene Volokh, *Freedom of Speech and Injunctions in Intellectual Property Cases*, 48 DUKE L.J. 147, 149–51 (1998).

⁹⁶ There are but a handful of specific exceptions to this rule, such as in the cases of fighting words, obscenity, and incitement of illegal activity. See, e.g., *Beckerman-Rodau*, *supra* note 33, at 27.

politically-charged (but nonfunctional) messages throughout patented software code and distributes the code without authority from the inventor, knowing that his protected political speech will always overcome a charge of patent infringement. Said another way: whether or not all software code is inherently First Amendment-protected speech,⁹⁷ all software code can be *converted* into First Amendment-protected speech, whether by *using* the code as speech, *expressively writing* it, *embedding* it with speech, or *reading* it as speech. Thus, if the First Amendment kills a patentee's right to recover for infringement of his software patent, then he has, *de facto*, no patent rights at all. Every valuable software patent would be lawfully infringed via the First Amendment loophole.

The above examples do not only apply to software patents. Most, if not all, patented processes, machines, manufactures, and compositions of matter⁹⁸ could be converted into First Amendment-type speech. Consider, for example, a would-be infringer of a valuable patented consumer product who, while otherwise impermissibly manufacturing the product, needlessly but expressively shapes or dresses the product to invoke the First Amendment trump against patent infringement. Subsequently, he could profit from selling the pirated product without paying any royalty to the inventor. Consider a would-be infringing user of a pirated video camera who asserts that her regular artistic uses of the camera constitute a First Amendment bar against patent infringement recovery by the uncompensated inventor. Consider a would-be infringer who manufactures, sells, and profits from a patented airplane. To escape the obligation to pay or even notify the patentee, he hires an artist to paint a First Amendment-type message on the side of each plane. The examples are endless, as virtually *every* patent could be infringed in a manner that was expressive, creative or otherwise protectable under the First Amendment. In such a regime, to the extent that a patented invention is made or used in any First Amendment-protected context, the inventor would go unrewarded for her contribution, and patent rights would exist in name only.

For all of the above reasons, the First Amendment cannot be a valid basis for rejection of claims in the present application.

⁹⁷ For example, there is debate as to whether bare object code counts as speech for First Amendment purposes. *See, e.g.,* Burk, *supra* note 84.

⁹⁸ *See* 35 U.S.C. § 101 (2006).

Claim Rejections

Claims 1-20 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. Claims 7-15 and 17-20 are rejected under 35 U.S.C. 103 as being unpatentable over any movie recorded on a DVD. Applicant respectfully traverses these rejections for the following reasons.

In paragraph 22, the Office Action states that a storyline *per se* is an abstract idea. Next, it states that “a storyline [cannot] be transformed into a patentable process merely by reciting it as a process of telling a story,” and cites classic dicta from *Diamond v. Diehr*. What the Office Action leaves out is the immediately preceding sentence: “Similarly, insignificant postsolution activity will not transform an unpatentable principle into a patentable process.” (Emphasis added.) For example, consider a claim having two steps: a) implementing [unpatentable mathematical formula or abstract idea]; and b) recording results from step a). Chances are good that this would not pass the *Diamond v. Diehr* test because recording results might be considered an “insignificant postsolution activity” to implementing the otherwise unpatentable mathematical formula.

However, claim 1 of the present application does not contain any such abstract idea that is transformed by insignificant postsolution activity. Claim recites “indicating a character’s desire...” “indicating said character’s substantial inability...” “indicating that ... said character was an active participant...” and so forth. Indicating desire, for example, is not an abstract idea that exists only in the ether – it is a real activity, a real step, a real procedure that real people perform every day in every city in every country! For example: “Mommy! I want ice cream!” There’s nothing abstract about this – it is the act of indicating desire. Love is an abstract idea. The fact that the binary number 1110 equals 14 in base 10 is an abstract idea. But there is nothing abstract about the act of shouting “I want ice cream!”

Paragraphs 24-25 liken storyline method patents to a mathematical formula found unpatentable in *Gottschalk v. Benson*. Upon first reading this, Applicant felt prepared – armed with a large mug of coffee and all – to determinedly defend storyline patents from this attack, when an incredible realization struck him: there had been no valid attack! It is the Patent Office’s obligation to provide a *prima facie* case against the patentability of

storyline methods. The burden, according to MPEP 2100, is on the Patent Office. Not a single shred of evidence is provided in the entire Office Action that the storyline method claims of the present application are “analogous to a mathematical formula.” It is the Patent Office’s obligation to explain why the claimed storyline processes and information storage media are abstract ideas. How is the process recited in claim 1 of the present application any more abstract than the “method of pumping a fluid” claimed in U.S. Patent No. 7,082,750 to Applicant? They’re simply processes reciting specific, definite, non-abstract steps!

Nevertheless, as a preemptive effort against a certainly imminent Final Rejection, Applicant will provide an analysis of relevant case law below to address arguments made in paragraphs 22-27.

Exceptions to Statutory Subject Matter

Section 101 includes as patentable subject matter “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof...”. In *Diamond v. Chakrabarty*, the U.S. Patent and Trademark Office had rejected the applicant’s claims to a human-made, genetically engineered bacterium on the grounds that the legislative history of a 1930 Plant Patent Act indicated that Congress did not intend to cover living things, such as these laboratory-created microorganisms, within the scope of Section 101. In response, the Supreme Court relied on Committee Reports accompanying a 1952 Act recodifying the patent laws which indicated that Congress intended statutory subject matter to “include anything under the sun that is made by man,” and thus included living, genetically engineered bacteria.⁹⁹ While Section 101 should be read extremely broadly, the Court reminded the nation that specifically excluded from statutory subject matter are the laws of nature, physical phenomena, and abstract ideas. As examples, the Court cited naturally occurring minerals and plants as well as the law of gravity and Einstein’s famed mass-energy equality $E=mc^2$.¹⁰⁰

⁹⁹ 447 U.S. 303, 309, 206 U.S.P.Q. (BNA) 193 (1980).

¹⁰⁰ *Id.* at 309.

A mathematical algorithm or equation had historically been treated as an unpatentable law of nature or abstract idea. See, e.g., *Gottschalk v. Benson*, in which the Supreme Court held that claims to a mathematical algorithm for converting binary code decimal numbers to equivalent pure binary numbers were unpatentable under Section 101 because otherwise “the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself.”¹⁰¹ However, the Court in *Diamond v. Diehr* recognized that the mere application of a well-known mathematical equation by a computer to an otherwise patentable process does not of itself kill patentability, because the applicants “seek only to foreclose from others the use of that [unpatentable] equation *in conjunction* with all of the other steps in their claimed process.”¹⁰²

State St. Bank & Trust Co. v. Signature Fin. Group involved the validity of claims directed to a data processing system that implemented a mathematical algorithm to perform a useful business method. The claims were challenged under both the “mathematical algorithm exception” and “business method exception” to patentable subject matter.¹⁰³

Regarding the former, the Court recognized that, fundamentally, every process is or includes an algorithm. That Congress specifically included “process” within Section 101 is sufficient to conclude that an algorithm is not necessarily excluded from the realm of patentable subject matter.¹⁰⁴ The court concluded that mathematical algorithms unpatentable under Section 101 are limited to “merely abstract ideas constituting disembodied concepts or truths that are not ‘useful.’”¹⁰⁵ The dispositive inquiry, held the Court, is whether the claim *as a whole* is directed to statutory subject matter, even if the claim contains some subject matter (e.g., a mathematical algorithm) that may not be patentable by itself. Because the claims were directed to a useful machine *implementing* the mathematical algorithm and producing a “useful, concrete and tangible result,” the claims did not fail under the mathematical algorithm exception.¹⁰⁶

¹⁰¹ 409 U.S. 63, 72, 175 U.S.P.Q. (BNA) 673 (1972).

¹⁰² 450 U.S. 175, 187, 209 U.S.P.Q. (BNA) 1 (1981), *emphasis added*.

¹⁰³ 149 F.3d 1368, 1372, 47 U.S.P.Q.2D (BNA) 1596 (Fed. Cir. 1998).

¹⁰⁴ *Id.* at 1374.

¹⁰⁵ *Id.* at 1373.

¹⁰⁶ *Id.* at 1375.

Regarding the latter, the Court clarified that the breadth of coverage afforded by a patent on a business method should be addressed under Sections 102, 103, and 112. However, a business method is just that—a method—and falls within statutory subject matter by its very nature.¹⁰⁷

The Federal Circuit eventually had to face up to the inevitable truth about computers: that software, like a mathematical equation, is nothing more than an algorithm for converting an input into a desired output. Can software, in and of itself, pass muster under Section 101? Unlike *State Street*, in which claims to a useful machine were at issue, *AT&T Corp. v. Excel Communs., Inc.* was addressed to a bare machine-executed process—i.e., software itself—to determine a value of a primary interexchange carrier (“PIC”) indicator in telephone systems.¹⁰⁸ Consistent with the continually expanding scope of statutory subject matter, the Court first trashed any differential treatment under Section 101 between machines and processes, and held that the claimed process, implemented by software, is statutory subject matter because it “applies [a] Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle.”¹⁰⁹ The prohibition from statutory subject matter against mathematical algorithms is truly narrow, and does not apply where it is “applied in a practical manner to produce a useful result.”¹¹⁰

Two cases are instructive on the meaning of “abstract idea.” First, in *In re Warmerdam*, the applicant claimed a two-step process that produced no useful, tangible result. The Court held that the claims involved nothing more than the “manipulation of basic mathematical constructs,” in spite of the fact that the claimed method, in conjunction with *other* steps, could produce a useful result. An apparatus performing the method was found to be statutory subject matter, but merely “taking several abstract ideas and manipulating them” does not pass muster under Section 101.¹¹¹ Second, in *In re Bonczyk*, a pro se inventor had claimed the following: “A fabricated energy structure for a uniform energy of the type having a single nature separated to oppose itself by a precise alternate time duration of existence that creates the dual nature for supporting and

¹⁰⁷ *Id.* at 1377.

¹⁰⁸ 172 F.3d 1352, 1358, 50 U.S.P.Q.2D (BNA) 1447 (Fed. Cir. 1999).

¹⁰⁹ *Id.*

¹¹⁰ *Id.* at 1360.

¹¹¹ 33 F.3d 1354, 1360, 31 U.S.P.Q.2D (BNA) 1754 (Fed. Cir. 1994).

extending the Fabricated energy...”. The Court held that an incomprehensible claim to an abstract energy structure failed to fall within any of the four statutory classes.¹¹²

The legal analysis of storyline method claims is straightforward. A method is a method and should be examined as such.¹¹³ The Supreme Court has made clear that statutory subject matter includes “anything under the sun that is made by man.”¹¹⁴ Unless the claimed invention is merely a law of nature¹¹⁵, a natural phenomenon¹¹⁶, a manipulation of basic mathematical constructs¹¹⁷, an abstract idea constituting disembodied concepts or truths that are not useful¹¹⁸, or an incomprehensible claim to an abstract energy state¹¹⁹, it is patentable subject matter. There is simply no statutory or common law exempting from patentability a useful method for producing entertainment.

Other claim forms, besides methods, may also be patentable subject matter, such as an article of manufacture containing the storyline. Consider a claim—which may be dubbed a “storyline article claim”—to a storage medium, such as a DVD or video cassette:

A machine-readable storage medium storing information and configured to cause a machine to perform a process of relaying a story having a unique plot, the story involving characters and having a timeline, the process comprising:
indicating that a first character...

The above claim format is substantively indistinguishable from the thousands of computer program product claims allowed by the Patent Office since *In re Beauregard*. If a computer disk containing a functionally unrelated but independently patentable software is patentable, should not a DVD containing an independently patentable storyline (in the form of a method executed by a consumer via her DVD player) also be

¹¹² 10 Fed. Appx. 908, 911 (Fed. Cir. 2001).

¹¹³ *State St. Bank* at 1377.

¹¹⁴ *Chakrabarty* at 309.

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *In re Warmerdam* at 1360.

¹¹⁸ *State St. Bank* at 1373.

¹¹⁹ *In re Bonczyk* at 911.

patentable? Further, as previously discussed, a book-bound fictional novel containing a patentable method is probably patentable simply because the inscriptions in the pages of a novel just *are* a computer program—given a computer programmed to read prose as a software language. A patentable software program embodied in a tangible medium is patentable. Analogously, a patentable storyline method embodied in a tangible medium—e.g., a novel—may also be patentable subject matter.

Regarding paragraph 28, the Office Action contends that the claimed process does not produce a concrete result because, according to the “Interim Guidelines,” a process must “substantially produce the same results,” and a process that produces unpredictable results cannot be considered to be concrete. Applicant’s first response is that the “Interim Guidelines” are not binding on the Federal Circuit or Supreme Court. In some sense, they’re not really law – they’re just Patent Office procedure. Since Applicant fully expects the present case to be ultimately decided by the Federal Circuit or Supreme Court, responding to rejections based on the Interim Guidelines seems moot. Nevertheless, Applicant enjoys this endeavor and will respond anyway.

Paragraphs 28 and 29 assert that the claimed processes are not concrete because “a dozen different storytellers can use the same plot to tell a dozen different stories.” True, but these dozen different stories will all be predictably the same in one fundamental way – they will all include the claimed features! By Examiner’s “heightened” concreteness standard, no claim of any patent application would ever be concrete! Consider, for example, the following patented claim: A method for manufacturing a toaster, comprising: performing A; performing B; and performing C.

Isn’t it true, to use the Office Action’s language, that “a dozen different [toaster manufacturers] can use the same [method] to [manufacture] a dozen different [toasters]”? Couldn’t this process produce unpredictable results? For example, consider whether a toaster manufacturer could perform the following completely unpredictable method based on the claimed method to arrive at entirely unpredictable results: performing A; drinking a shot of tequila; performing B while humming a Neil Diamond tune; performing C with a blue crayon; and playing a rousing game of hopscotch. Because the claimed process could indisputably produce these unpredictable results, then it would fail the Examiner’s

“heightened” concreteness standard. We are left to conclude that either no patent applications can ever pass this test, or that the stated test is incorrect. Applicant suspects the latter. In the case of claim 1 of the present application, for example, the concrete result of performing the claimed process is that a story has been relayed having the specifically recited plot elements.

Referring now to paragraphs 30-31, the Office Action prudently applies the so-called “printed matter doctrine” to reject claimed subject matter that “constitutes non-functional descriptive material that does not exhibit any functional relationship to the substrate upon which it is recorded...”. The primary problem with the printed matter doctrine, argues Applicant, is that it consists basically of a big pile of indecipherable and contradictory hodgepodge¹²⁰. While a more detailed analysis follows, the main thrust of the analysis is that a CD-ROM containing patentable software is, under the current patent scheme, a patentable article of manufacture, even though the software itself clearly has no “functional relationship” to the CD-ROM substrate. Books and movies are information-containing substrates analogous to CD-ROMs and are patentable therewith.

The Printed Matter Doctrine

The “printed matter doctrine” is loosely defined as the principle that printed matter (e.g., a book) is not, per se, patentable.¹²¹ This doctrine rests on shaky legal authority and, in any event, has been whittled away to an archaic common law has-been. Even its current application in proving unpatentability over prior art has become an unpersuasive legal argument.

In *In re Gulack*, the applicant claimed a wearable ribbon containing various numbers and equations, intended to assist the wearer in performing various arithmetic calculations.¹²² The Board of Patent Appeals and Interferences had overturned the Examiner’s §101 rejection of the claims under the printed matter doctrine, on the basis

¹²⁰ The word “hodgepodge” was used advisedly. Other contenders were “gibberish” and “gobbledygook.”

¹²¹ A related, and perhaps identical, doctrine is that nonfunctional descriptive material in a claim is not afforded patentable weight over prior art. The concept appears in the *Manual of Patent Examining Procedure*, but sound or binding legal basis for it is utterly lacking.

¹²² 703 F.2d 1381, 217 U.S.P.Q. (BNA) 401 (Fed. Cir. 1983).

that the ribbon was clearly a statutorily allowed “article of manufacture.”¹²³ The question at issue was whether the printed matter doctrine prevented the numbers and equations printed on the ribbon from receiving patentable weight under Sections 102 and 103. In other words, the printed matter doctrine—what little of it remains today—relates to the question of prior art, *not* of statutory subject matter. The Court stated that “where the printed matter is not functionally related to the substrate, the printed matter will not distinguish the invention from the prior art in terms of patentability,” and held that the ribbon was patentable because the printed matter was both functionally related to the ribbon and because the relationship was new and nonobvious.¹²⁴

In *Ex parte Robert W. Carver*, the applicant claimed a stereophonic recording which, when the recording is played on a stereo player machine, creates sounds in one location that cancel out certain sound patterns received at an opposing location.¹²⁵ The court found that the sound information (which is legally equivalent in this analysis to words on a page) stored on a recording medium (which is legally equivalent to a sheet of paper) did *not* evoke the printed matter doctrine because “the claims, when considered as a whole... broadly define an article of manufacture (i.e., the recording in which the sound pattern is embodied) rather than a sound pattern per se.”¹²⁶ The truly amazing fact, as pointed out by the Dissent, is that the claimed recording involved a *sound pattern* recorded on any one of a variety of possible substrates (records, magnetic tapes, CDs, etc.) with *no functional relationship* to the chosen substrate. Thus, in finding that the claims distinguished over the prior art, the Court ultimately gave the sound pattern per se patentable weight and implicitly destroyed the printed matter doctrine, even as applied to Sections 102 and 103.

The “functional relationship” test was put to rest in *In re Lowry*, in which the applicant’s claims related to the storage, use, and management of information residing in a memory.¹²⁷ First, noting that the printed matter doctrine under Section 103 stood on questionable legal and logical footing anyway, the Court distinguished the present case over past printed matter cases, which “dealt with claims defining as the invention certain

¹²³ *Id* at 1384.

¹²⁴ *Id* at 1385.

¹²⁵ 227 U.S.P.Q. (BNA) 465 (Board of Patent Appeals and Interferences, 1985).

¹²⁶ *Id*.

¹²⁷ 32 F.3d 1579, 32 U.S.P.Q.2D (BNA) 1031 (Fed. Cir. 1994).

novel arrangements of printed lines or characters, useful and intelligible only to the human mind [as opposed to a machine].”¹²⁸ However, the asserted mind-machine dichotomy is a distinction without a difference in an electronic world in which books are often read on a computer screen and printed words and sentences may optically scanned and read as “useful and intelligible” commands to a computer. Second, recognizing that its asserted mind-machine dichotomy may be insufficient, the Court reduced the printed matter issue to one question: does the claimed method *perform a function*?¹²⁹ Of course, it is difficult to formulate a method that does not perform a function of some kind.

In *In re Beauregard*, the applicant’s computer program product claims were rejected as nonstatutory on the basis of the printed matter doctrine.¹³⁰ During appeal, the Commissioner of Patents, apparently realizing the futility of arguing the printed matter doctrine, changed the Patent Office’s position such that “computer programs embodied in a tangible medium, such as floppy diskettes, are patentable subject matter under 35 U.S.C. § 101 and must be examined under 35 U.S.C. §§ 102 and 103.” In stating that no controversy existed, the Court put the printed matter doctrine, as a whole, to rest.

What is surprising but equally clear, given the above-discussed law, is that a *sheet of paper* upon which patentable software is printed *is patentable*. Software is merely a set of instructions to a processor for performing a method, and may be written in *any* conceivable language and on *any* conceivable substrate. It makes no difference that the software language used may also be intelligible to and readable by a human mind. Consider, for example, a software language that reads like ordinary English. A sheet of paper is then imprinted with a software program, and is intended to be fed into a computer processor via an optical scanner that reads and executes the software’s method, but can just as easily be read and “executed” by a human person. Make no mistake: the imprinted sheet of paper is the very epitome of printed matter. Yet, under *In re Beauregard*, the imprinted sheet of paper is a “computer [program] embodied in a tangible medium,” and must be examined for patentability under Sections 102 and 103. In other words, if the software’s method is patentable, so is the imprinted sheet of paper.

¹²⁸ *Id* at 1583.

¹²⁹ *Id* at 1584.

¹³⁰ 53 F.3d 1583, 35 U.S.P.Q.2D (BNA) 1383 (Fed. Cir. 1995).

In fact, a patentable method may be embodied in a book-bound fictional novel. Because a processor may be programmed to glean instructions for performing the patentable method directly from the novel's words, the novel itself may be a patentable article of manufacture. Until Congress legislates otherwise or a high court revives it, the printed matter doctrine is dead.

Some may argue that the Federal Circuit in *In re Ngai* revived the printed matter doctrine by holding that printed instructions describing a new, nonobvious use for a product does not impart patentability to a claim directed to a combination of the product and the instructions.¹³¹ Applicant disagrees. Ultimately, the printed matter doctrine is being tested and killed every day as the Patent Office issues and federal courts defend the validity of software patents. Software patents claiming information-containing substrates are essentially patents on printed matter with no functional relationship to the substrates on which the information is held.¹³² Therefore, Applicant respectfully asserts that books, movies, CD-ROMs, and computer hard drives are all information-containing substrates that are patentable together.

Referring now to the Section 103 rejections beginning in paragraph 35, the Patent Office (significantly) makes no prior art rejections, on the basis that "there is no technological basis for evaluating combinations of plot elements...". Applicant is thoroughly confused by this statement because, as discussed previously, there is no "technology" requirement for patentability – thus there can be no requirement of a technological basis for evaluating patents.

Next, in paragraph 36, the Patent Office states that "it is impossible to determine the 'state of the art' – i.e., the scope and content of the prior art" because "storytelling is not an 'art' in the sense that we use it in patent law." Applicant, in attempting to understand this point, will paraphrase it to the best of his ability: "You can't determine the 'state of the art' since storylines are not a patentable 'art'." The problem with this

¹³¹ 367 F.3d 1336 (Fed. Cir. 2004).

¹³² Applicant provides a much more detailed analysis of why the printed matter doctrine and the allowability of software patents are incompatible in his article, *Software, Components, and Bad Logic: Recent Interpretations of Section 271(f)*, incorporated by reference herein.

argument is that it isn't a Section 103 rejection – it's just a rehash of the Patent Office's previous Section 101 rejections, which Applicant has already addressed.

Paragraph 36 is also full of interesting but unsupported conjectures, such as that storytelling has no “state” and it is not possible in storytelling to “ascertain when certain elements are added to the technology.” However, no evidence or reasoning is given. What prevents an inventor from starting with plot elements A, B, and C, and then adding an element D? Further, the conjectures rest on the assumption that invention is always based on adding elements to technology, when in reality most patent claims are novel and nonobvious combinations of elements that already exist. The “state” of the storyline art can be ascertained, essentially, by compiling all known storylines.

Paragraph 37 contains an astounding assertion, namely that searching the world's literature for plot elements would be “impossible,” which word was, apparently, used “advisedly.” As a nuclear engineer, Applicant was puzzled by the use of this strong word, because he assumed that the word “impossible” was ordinarily reserved for events that are not possible, such as reverse time travel¹³³. So he took a gander at Merriam-Webster's Online Dictionary (www.m-w.com), which provided startling news: a secondary definition of “impossible” is “extremely undesirable.” (Copy attached.) Is this the definition that the Patent Office intended? A close look at paragraphs 37-43 reveals a distinctive downgrade of “impossible” to “practical[ly] impossible” and “virtually impossible.” It is clear, based on this evidence, that the Patent Office doesn't actually believe that searching the world's literature is more difficult than time travel through wormholes, but rather that it would be extremely undesirable and quite inconvenient. Applicant understands and even empathizes with the Patent Office. Unfortunately, inconvenience in examination is not currently a valid basis for claim rejection.

In paragraph 38, the Patent Office asserts that the “level of ordinary skill” has no meaning in the present context because “Whether someone is a ‘skillful’ storyteller is a matter of opinion. Tastes vary... there are no objective criteria for determining the level of ‘ordinary’ skill.” Applicant responds that “one of ordinary skill in the art” is a legal fiction representing a person who has extensive knowledge of his field, although he may

¹³³ Although even this event, according to some physicists, would be possible by traveling near the speed of light through enormous “wormholes.”

not be particularly clever. If Mark Twain argued that James Fenimore Cooper was not a skilled storyteller, he meant it in the colloquial sense, not the legal sense, and his personal opinion would have had no bearing on the legal determination of whether Mr. Cooper met the qualifications of one of ordinary skill in the art of storytelling. The assertion that no objective criteria currently exist for determining the level of ordinary skill in the art of storytelling says nothing about the patentability of storyline method claims – rather, it says that it’s time to create some objective criteria!¹³⁴ For example, software patents were allowed long before commentators began discussing objective criteria for the level of ordinary skill in the art of software engineering.¹³⁵

In paragraph 39, the Patent Office asks all kinds of rhetorical questions, apparently hoping that asking lots of hard questions will substitute for valid claim rejections. They don’t, argues Applicant, nor does Applicant feel required to answer them, as they don’t form a *prima facie* case against the claims of the present invention. However, the Patent Office does specifically state that there cannot be “objective evidence indicating obviousness...” of storyline patent claims. Applicant heartily disagrees. Assume, for example, that a movie already exists that describes a plot having elements A, B, and C, where element C involves utilizing a computer-generated virtual reality environment. Assume also that a storyline inventor creates a storyline method having elements D, E, and F, but states in her written description that any of the elements could occur within or in conjunction with a virtual reality. One might conclude that this suggestion constitutes objective evidence that renders the inventor’s storyline combinable with at least element C (and perhaps the entirety) of the prior art movie, thus preventing future storyline inventors from patenting such a combination. Again, the Patent Office has not established a *prima facie* case against the claims of the present invention by simply asserting, with no evidence, that “there cannot possibly be any ... objective evidence [of obviousness].”

In paragraph 40, the Patent Office suggests that, should storyline patents be allowed, they should be subject to stricter standards than other inventions by completely

¹³⁴ A further analysis of the level of ordinary skill in the art of storytelling is provided (and incorporated by reference) in Applicant’s article, *A Patently Novel Plot: Fiction, Information, and Patents in the 21st Century*.

¹³⁵ See, e.g., Lance D. Reich, *One of Skill in the Art in Software Engineering: The Rising Tide*, 84 J. PAT & TRADEMARK OFF. SOC’Y 269, 278–84 (2002).

ignoring the legal requirement to identify, within the prior art references, a motivation to combine them to obviate claims under Section 103. No reason is offered as to why storyline patent claims would be subject to stricter standards, except the unfounded assertion that there “cannot possibly” be evidence of obviousness in storyline patent applications, which Applicant just refuted by providing one possibility.

Paragraph 42 is a final attempt to explain just how inconvenient it would be for the Patent Office to examine storyline patent applications, because “There are no databases that encompass all of the stories told or written by man.” Applicant has two responses. First, the U.S. patent system was created and developed long before searchable databases of inventions in any field existed. Eventually, for reasons of efficiency, such databases naturally developed, and Applicant has tremendous faith in the power of the United States’ free market economy to produce a comparable database for storylines, should they be found allowable. Second – a fact that simply cannot be stressed enough – inconvenience of examination by the Patent Office is, to Applicant’s knowledge, not a valid basis for claim rejection.

The knowledge (of existing storylines) is currently available, if somewhat piecemeal. The fact that no comprehensive database yet exists is only due to the fact that no storyline claims have yet been patented. But Applicant is not to blame – and should not be penalized – for being the first to so attempt. If storyline methods are allowable under current patent law, then inconvenience on the part of the Patent Office in examining the first few storyline patent applications should not prevent Applicant from exercising his right to obtain a patent on new and nonobvious storyline claims.

Paragraph 42 also asserts that no patent examiner could “perform a meaningful search of such a database if one existed” because literary scholars “are rare in the Patent Office.” While this may be true, it’s only because literary scholars have not yet been needed by the Patent Office. If and when storyline patents are found allowable, a need will arise and experts in the literary arts can be hired by the Patent Office.

In paragraph 44, claims 7-15 and 17-20 are rejected under Section 103(a) as being unpatentable “over any movie recorded on a DVD.” At first glimpse, this rejection appeared to Applicant as being a prior art rejection based on a combination of every plot known, without citing any specific prior art or any motivations to combine, the lack of

which would (of course) have been impermissible. However, it appears on closer inspection that the rejection is actually nothing more than an application of the printed matter doctrine. However, no prior art is cited, and the Patent Office even assumes in paragraph 43 that the claimed storylines meet the tests of novelty and nonobviousness! These rejections fail to establish a *prima facie* case of obviousness because “the prior art reference (or references when combined) must teach or suggest all the claim limitations.” MPEP 2142. Since the Office Action does not contend that all claim elements of claims 7-15 and 17-20 are taught or suggested – namely, those elements relating directly to the underlying storylines – then it fails to establish a *prima facie* case of obviousness. Further, Applicant has previously argued that the printed matter doctrine is no more applicable to storyline patent claims than it is to software patent claims.

Applicant has made a sincere attempt to thoroughly respond to each and every of the rejections in the Office Action. Copies of Applicant’s papers, “A Potentially New IP: Storyline Patents,” “Software, Components, and Bad Logic: Recent Interpretations of Section 271(f),” and “A Patently Novel Plot: Fiction, Information, and Patents in the 21st Century” are included with the present reply and are incorporated by reference to the extent necessary to fully address and respond to each and every of the rejections in the Office Action.

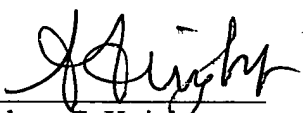
Information Disclosure Statement

The Patent Office requires that a Form PTO-1449 be filed listing all references cited in Applicant’s July 30, 2007 response to the Request for Information. Applicant attaches a completed form PTO-1449, pursuant to this request.

Conclusion and Fees

Because Applicant has paid for 20 claims and 3 independent claims, and because there are now 20 total claims and 2 independent claims pending, Applicant believes that no fee is due. If Examiner Coburn believes that a telephone conference will further prosecution of the present case, he is invited to contact Applicant at the number indicated below.

Respectfully,



Andrew F. Knight Date 5/16/08
Applicant
609-672-4166
124 Southampton Dr.
Vinton, VA 24179

APPLICANT IS BEST REACHED BY EMAIL AT AFKNIGHT@GMAIL.COM.

Main Entry:

im·pos·si·ble

Pronunciation:

\(,)im-'pā-sə-bəl\

Function:

adjective

Etymology:

Middle English, from Anglo-French & Latin; Anglo-French, from Latin
impossibilis, from *in-* + *possibilis* possible

Date:

14th century

1 a: incapable of being or of occurring **b**: felt to be incapable of being done, attained, or fulfilled : insuperably difficult <an *impossible* deadline>

2 a: extremely undesirable : UNACCEPTABLE **b**: extremely awkward or difficult to deal with <the actor was *impossible* on the set>

— **im·pos·si·ble·ness** *noun*

Substitute for form 1449B-PTO

MAY 19 2008

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet

1

of

3

Complete if Known

Application Number

10/722,473

Filing Date

11/28/2003

First Named Inventor

Andrew F. Knight

Art Unit

3714

Examiner Name

C. Coburn

Attorney Docket Number

009

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		KNIGHT, ANDREW F., "A Potentially New IP: Storyline Patents," Journal of the Patent and Trademark Office Society, Vol. 86, No. 11 (2004).	X
		KNIGHT, ANDREW F., "A Patently Novel Plot: Fiction, Information, and Patents in the 21st Century," IDEA: The Intellectual Property Law Review, Vol. 47, No. 2 (2006).	X
		KNIGHT, ANDREW F., "Software, Components, and Bad Logic: Recent Interpretations of Section 271(f)," Journal of the Patent and Trademark Office Society, Vol. 87, No. 6 (2005).	X
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		CLAYTON, LEWIS R., "'Lundgren' and Limits," The National Law Journal (Dec. 19-26, 2005).	

Examiner
Signature

Date
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet 2 of 3

Complete if Known

Application Number	10/722,473
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First Named Inventor	Andrew F. Knight
Art Unit	3714
Examiner Name	C. Coburn
Attorney Docket Number	009

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
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				Application Number	10/722,473
				Filing Date	11/28/2003
				First Named Inventor	Andrew F. Knight
				Art Unit	3714
				Examiner Name	C. Coburn
Sheet	3	of	3	Attorney Docket Number	009

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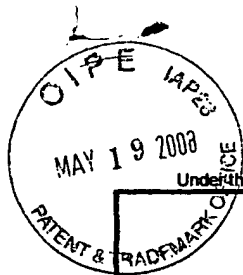
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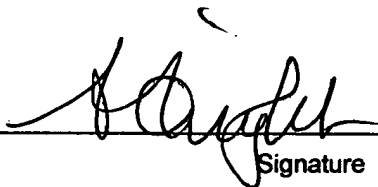
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Notes from the Editor

This month we hear about a potentially new form of patent subject matter, and several takes on claim construction.

Andrew Knight explores the possibility of Storyline Patents
Michael Connor and John Wasleff critically examine the Federal Circuit's opposing theories of claim construction.

John Molenda also examines the internal debate highlighted by the court's decision to rehear *Phillips v. AWH Corp. en banc*.

Lastly, Todd Miller looks at the "Doctrine of Prosecution Disclaimer" in a litigation context.

That's all from here,

Louis S. Zarfas
Editor-in-Chief

A Potentially New IP: Storyline Patents

Andrew F. Knight*

In a series of cases beginning with *Diamond v. Chakrabarty*, which made famous the phrase "anything under the sun that is made by man" to describe statutory subject matter under 35 U.S.C. §101, the Federal Circuit has clarified that the truly expansive scope of Section 101 includes computer software, in spite of a blatant violation of the so-called printed matter doctrine, now relegated to an historical legal has-been. This paper posits the existence and allowability under Section 101 of "Storyline Patent" claims, which aim to protect not the copyrightable expression of a unique underlying storyline, but the storyline itself — in the form of either the process necessary to implement the unique fictional plot in an entertainment medium, or in terms of the medium itself. Not only should such claims be deemed statutory subject matter under current U.S. law, but the public policy rationales for the acceptance of Storyline Patent claims mirror those of any other type of patent claim.

I. INTRODUCTION

In the *Diamond v. Chakrabarty*, the Supreme Court held that living, genetically engineered bacteria were within the scope of utility patent protection under 35 U.S.C. §101, on the basis that Congress intended statutory subject matter to "include anything under the sun that is made by man."¹ Since then, Section 101, which statutorily includes "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof," has been read to include

* Georgetown University Law Center
1 447 U.S. 303, 309, 206 U.S.P.Q. (BNA) 193 (1980).

computer software², business methods³, even asexually reproducing hybrid plants⁴, which would ordinarily be covered by plant patents.

The exclusionary effect of Section 101 is limited to "laws of nature, natural phenomena, and abstract ideas."⁵ The tension between patent and copyright protection has historically been addressed by the judicially created "printed matter doctrine," which excludes printed matter *per se* from patent protection under Section 101, on the basis that intellectual property protection is already afforded under copyright law. However, even the patentability exclusions of the printed matter doctrine have been whittled away by the present patentability of a storage medium—read: a non-novel storage medium currently existing in the prior art — containing patentable software that has no functional relationship to the storage medium itself.⁶ The fact that disk-contained software is "printed matter" that is both patentable for the method that it executes on a machine as well as copyrightable for its particular expression of the machine-executable method is happily embraced by U.S. law.

This IP protection dichotomy is easily understood when one recognizes that the underlying functional method that a software relays to a machine is fundamentally distinct — and valuable in its own right — from the software's particular expression (i.e., its code) of that underlying method. In other words, poorly written software implementing a valuable new method is nevertheless valuable, in spite of the code's quality; vice versa, particularly well written software implementing an old method is also valuable, in spite of the method's archaicism.

Applying analogous reasoning, this paper will address whether a fictional plot or storyline, itself, may pass the test of patentability under Section 101. Like software, a fictional story may include two valuable features: the underlying storyline and the particular expression of that storyline. Like software, the latter is clearly protectible under copyright law. And, like software, the former should be protectible under patent law.

One goal of this paper is to convince the reader that for those literary or cinematic works containing refreshingly original storylines, at least a portion of the social value of those works is in the storylines themselves, distinct from the particular expression of those storylines. If so, public

policy dictates a need for legal protection, in the form of intellectual property rights, for the entire work — expression *and* storyline.

II. PATENT LAW

A valid U.S. patent must satisfy, at a minimum, the requirements of Sections 101 ("utility"), 102 ("novelty"), 103 ("nonobviousness"), and 112 ("definiteness") of 35 U.S.C. Passing each of these tests is not equally difficult; by far the most common bases for final rejection of patent applications is novelty and nonobviousness. The Section 101 test — i.e., showing that the claimed invention is patentable subject matter — has the lowest threshold of all.

A. EXCEPTIONS TO STATUTORY SUBJECT MATTER

Section 101 includes as patentable subject matter "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof..." In *Diamond v. Chakrabarty*, the U.S. Patent and Trademark Office had rejected the applicant's claims to a human-made, genetically engineered bacterium on the grounds that the legislative history of a 1930 Plant Patent Act indicated that Congress did not intend to cover living things, such as these laboratory-created microorganisms, within the scope of Section 101. In response, the Supreme Court relied on Committee Reports accompanying a 1952 Act recodifying the patent laws which indicated that Congress intended statutory subject matter to "include anything under the sun that is made by man," and thus included living, genetically engineered bacteria.⁷ While Section 101 should be read extremely broadly, the Court reminded the nation that specifically excluded from statutory subject matter are the laws of nature, physical phenomena, and abstract ideas. As examples, the Court cited naturally occurring minerals and plants as well as the law of gravity and Einstein's famed mass-energy equality $E=mc^2$.⁸

A mathematical algorithm or equation had historically been treated as an unpatentable law of nature or abstract idea. See, e.g., *Gottschalk v. Benson*, in which the Supreme Court held that claims to a mathematical algorithm for converting binary code decimal numbers to equivalent pure binary numbers were unpatentable under Section 101 because otherwise "the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm

² *AT&T Corp. v. Excel Commun., Inc.*, 172 F.3d 1352, 50 U.S.P.Q.2D (BNA) 1447 (Fed. Cir. 1999).

³ *State St. Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368, 47 U.S.P.Q.2D (BNA) 1596 (Fed. Cir. 1998).

⁴ *Pioneer Hi-Bred Int'l, Inc. v. J.E.M. Agric. Supply, Inc.*, 200 F.3d 1374, 53 U.S.P.Q.2D (BNA) 1440 (Fed. Cir. 2000).

⁵ *Diamond v. Diehr*, 450 U.S. 175, 185, 209 U.S.P.Q. (BNA) 1 (1981).

⁶ *In re Beutegard*, 53 F.3d 1583, 35 U.S.P.Q.2D (BNA) 1383 (Fed. Cir. 1995).

⁷ 447 U.S. 303, 309, 206 U.S.P.Q. (BNA) 193 (1980).

⁸ *Id.* at 309.

itself.”⁹ However, the Court in *Diamond v. Diehr* recognized that the mere application of a well-known mathematical equation by a computer to an otherwise patentable process does not of itself kill patentability, because the applicants “seek only to foreclose from others the use of that [unpatentable] equation *in conjunction* with all of the other steps in their claimed process.”¹⁰

State St. Bank & Trust Co. v. Signature Fin. Group involved the validity of claims directed to a data processing system that implemented a mathematical algorithm to perform a useful business method. The claims were challenged under both the “mathematical algorithm exception” and “business method exception” to patentable subject matter.¹¹

Regarding the former, the Court recognized that, fundamentally, every process is or includes an algorithm. That Congress specifically included “process” within Section 101 is sufficient to conclude that an algorithm is not necessarily excluded from the realm of patentable subject matter.¹² The court concluded that mathematical algorithms unpatentable under Section 101 are limited to “merely abstract ideas constituting disembodied concepts or truths that are not ‘useful.’”¹³ The dispositive inquiry, held the Court, is whether the claim *as a whole* is directed to statutory subject matter, even if the claim contains some subject matter (e.g., a mathematical algorithm) that may not be patentable by itself. Because the claims were directed to a useful machine *implementing* the mathematical algorithm and producing a “useful, concrete and tangible result,” the claims did not fail under the mathematical algorithm exception.¹⁴

Regarding the latter, the Court clarified that the breadth of coverage afforded by a patent on a business method should be addressed under Sections 102, 103, and 112. However, a business method is just that — a method — and falls within statutory subject matter by its very nature.¹⁵

The Federal Circuit eventually had to face up to the inevitable truth about computers: that software, like a mathematical equation, is nothing more than an algorithm for converting an input into a desired output. Can software, in and of itself, pass muster under Section 101? Unlike *State Street*, in which claims to a useful machine were at issue, *AT&T*

⁹ 409 U.S. 63, 72, 175 U.S.P.Q. (BNA) 673 (1972).

¹⁰ 450 U.S. 175, 187, 209 U.S.P.Q. (BNA) 1 (1981), emphasis added.

¹¹ 149 F.3d 1368, 1372, 47 U.S.P.Q.2D (BNA) 1596 (Fed. Cir. 1998).

¹² *Id.* at 1374.

¹³ *Id.* at 1373.

¹⁴ *Id.* at 1375.

¹⁵ *Id.* at 1377.

Corp. v. Excel Communs., Inc. was addressed to a bare machine-executed process — i.e., software itself — to determine a value of a primary interexchange carrier (“PIC”) indicator in telephone systems.¹⁶ Consistent with the continually expanding scope of statutory subject matter, the Court first trashed any differential treatment under Section 101 between machines and processes, and held that the claimed process, implemented by software, is statutory subject matter because it “applies [a] Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle.”¹⁷ The prohibition from statutory subject matter against mathematical algorithms is truly narrow, and does not apply where it is “applied in a practical manner to produce a useful result.”¹⁸

Two cases are instructive on the meaning of “abstract idea.” First, in *In re Warmerdam*, the applicant claimed a two-step process that produced no useful, tangible result. The Court held that the claims involved nothing more than the “manipulation of basic mathematical constructs,” in spite of the fact that the claimed method, in conjunction with other steps, could produce a useful result. An apparatus performing the method was found to be statutory subject matter, but merely “taking several abstract ideas and manipulating them” does not pass muster under Section 101.¹⁹ Second, in *In re Bonczyk*, a pro se inventor had claimed the following: “A fabricated energy structure for a uniform energy of the type having a single nature separated to oppose itself by a precise alternate time duration of existence that creates the dual nature for supporting and extending the Fabricated energy...” The Court held that an inapprehensible claim to an abstract energy structure failed to fall within any of the four statutory classes.²⁰

B. THE PRINTED MATTER DOCTRINE

Another historical exception to statutory subject matter is known as the “printed matter doctrine,” loosely defined as the principle that printed matter (e.g., a book) is not, per se, patentable.²¹ This doctrine rests on shaky legal authority and, in any event, has been whittled away to an

¹⁶ 172 F.3d 1352, 1358, 50 U.S.P.Q.2D (BNA) 1447 (Fed. Cir. 1999).

¹⁷ *Id.*

¹⁸ *Id.* at 1360.

¹⁹ 33 F.3d 1354, 1360, 31 U.S.P.Q.2D (BNA) 1754 (Fed. Cir. 1994).

²⁰ 10 Fed. Appx. 908, 911 (Fed. Cir. 2001).

²¹ A related, and perhaps identical, doctrine is that nonfunctional descriptive material in a claim is not afforded patentable weight over prior art. The concept appears in the *Manual of Patent Examining Procedure*, but sound or binding legal basis for it is utterly lacking.

archaic common law has been. Even its current application in proving unpatentability over prior art has become an unpersuasive legal argument.

In *In re Gulack*, the applicant claimed a wearable ribbon containing various numbers and equations, intended to assist the wearer in performing various arithmetic calculations.²² The Board of Patent Appeals and Interferences had overturned the Examiner's §101 rejection of the claims under the printed matter doctrine, on the basis that the ribbon was clearly a statutorily allowed "article of manufacture."²³ The question at issue was whether the printed matter doctrine prevented the numbers and equations printed on the ribbon from receiving patentable weight under Sections 102 and 103. In other words, the printed matter doctrine — what little of it remains today — relates to the question of prior art, *not* of statutory subject matter. The Court stated that "where the printed matter is not functionally related to the substrate, the printed matter will not distinguish the invention from the prior art in terms of patentability," and held that the ribbon was patentable because the printed matter was both functionally related to the ribbon and because the relationship was new and nonobvious.²⁴

In *Ex parte Robert W. Carver*, the applicant claimed a stereophonic recording which, when the recording is played on a stereo player machine, creates sounds in one location that cancel out certain sound patterns received at an opposing location.²⁵ The court found that the sound information (which is legally equivalent in this analysis to words on a page) stored on a recording medium (which is legally equivalent to a sheet of paper) did *not* evoke the printed matter doctrine because "the claims, when considered as a whole... broadly define an article of manufacture (i.e., the recording in which the sound pattern is embodied) rather than a sound pattern per se."²⁶ The truly amazing fact, as pointed out by the Dissent, is that the claimed recording involved a *sound pattern* recorded on any one of a variety of possible substrates (records, magnetic tapes, CDs, etc.) with *no functional relationship* to the chosen substrate. Thus, in finding that the claims distinguished over the prior art, the Court ultimately gave the sound pattern *per se* patentable weight and implicitly destroyed the printed matter doctrine, even as applied to Sections 102 and 103.

²² 703 F.2d 1381, 217 U.S.P.Q. (BNA) 401 (Fed. Cir. 1983).

²³ *Id.* at 1384.

²⁴ *Id.* at 1385.

²⁵ 227 U.S.P.Q. (BNA) 465 (Board of Patent Appeals and Interferences, 1985).

²⁶ *Id.*

The "functional relationship" test was finally put to rest in *In re Lowry*, in which the applicant's claims related to the storage, use, and management of information residing in a memory.²⁷ First, noting that the printed matter doctrine under Section 103 stood on questionable legal and logical footing anyway, the Court distinguished the present case over past printed matter cases, which "dealt with claims defining as the invention certain novel arrangements of printed lines or characters, useful and intelligible only to the human mind [as opposed to a machine]."²⁸ However, the asserted mind-machine dichotomy is a distinction without a difference in an electronic world in which books are often read on a computer screen and printed words and sentences may optically scanned and read as "useful and intelligible" commands to a computer. Second, recognizing that its asserted mind-machine dichotomy may be insufficient, the Court reduced the printed matter issue to one question: does the claimed method *perform a function*?²⁹ Of course, it is difficult to formulate a method that does not perform a function of some kind.

In *In re Beauregard*, the applicant's computer program product claims were rejected as nonstatutory on the basis of the printed matter doctrine.³⁰ During appeal, the Commissioner of Patents, apparently realizing the futility of arguing the printed matter doctrine, changed the Patent Office's position such that "computer programs embodied in a tangible medium, such as floppy diskettes, are patentable subject matter under 35 U.S.C. § 101 and must be examined under 35 U.S.C. §§ 102 and 103." In stating that no controversy existed, the Court put the printed matter doctrine, as a whole, to rest.

What is surprising but equally clear, given the above-discussed law, is that a *sheet of paper* upon which patentable software is printed *is patentable*. Software is merely a set of instructions to a processor for performing a method, and may be written in *any* conceivable language and on *any* conceivable substrate. It makes no difference that the software language used may also be intelligible to and readable by a human mind. Consider, for example, a software language that reads like ordinary English. A sheet of paper is then imprinted with a program software, and is intended to be fed into a computer processor via an

²⁷ 32 F.3d 1579, 32 U.S.P.Q.2D (BNA) 1031 (Fed. Cir. 1994).

²⁸ *Id.* at 1583.

²⁹ *Id.* at 1584.

³⁰ 53 F.3d 1583, 35 U.S.P.Q.2D (BNA) 1383 (Fed. Cir. 1995).

optical scanner that reads and executes the software's method, but can just as easily be read and "executed" by a human person. Make no mistake. The imprinted sheet of paper is the very epitome of printed matter. Yet, under *In re Beauregard*, the imprinted sheet of paper is a "computer [program] embodied in a tangible medium," and must be examined for patentability under Sections 102 and 103. In other words, if the software's method is patentable, so is the imprinted sheet of paper.

In fact, a patentable method may be embodied in a book-bound fictional novel. Because a processor may be programmed to glean instructions for performing the patentable method directly from the novel's words, the novel itself may be a patentable article of manufacture. Until Congress legislates otherwise or a high court revives it, the printed matter doctrine is dead.

III. STORYLINE PATENTS

At the turn of the century, Writer/Director Christopher Nolan created a masterpiece in *Memento*, a motion picture which will serve as a working example. The motion picture tells the story of Leonard, a man who was attacked by a perpetrator who raped and killed his wife. The attack left him brain-damaged and incapable of creating new memories, so that each hour-long bout of conscious continuity is accompanied by an initial period of "waking up" and briefly learning — by looking at often freshly-drying Polaroid pictures — of his whereabouts, his mission, and his purpose.

To help place the audience in Leonard's shoes, the audience too is denied the opportunity to remember past events: the movie is shown in short segments in reverse chronological order. Thus, the movie begins with Leonard finding and killing the supposed perpetrator — a Polaroid in Leonard's hand labeled, "Teddy. Don't listen to his lies. He's the one. Kill him." — and progresses in reverse to show each of Leonard's steps toward identifying and hunting Teddy. The storyline ends in its chronological beginning when Leonard, in a saddening and emotionally charged realization that his prospects for retribution (indeed, for any meaningful endeavor) were impossibly slim in his hazy world of confusion, intentionally identifies Teddy, whom he knows is not the real perpetrator, as his prey.

This structure of the movie — while gripping and brilliant — may or may not be novel. Nevertheless, that the method of creating a movie in this manner is statutory subject matter under Section 101 is indisputable.

Further, the motion picture as a whole, screenplay included, is clearly copyrightable. What some may dispute is whether the movie's underlying storyline, including what is probably a legally novel and nonobvious (not to mention shocking) plot twist at its chronological beginning, is statutory subject matter under current patent law.

How might a claim in a plot or storyline patent be structured? A court might competently reason that a story in the abstract is just that: an unpatentable abstract idea. However, that a book-bound fictional novel is unpatentable merely by nature of its being printed matter has been, I believe, refuted by the assertion that such a novel could be, in a very real sense, a patentable computer program embodied in a tangible medium — thus, a patentable article of manufacture. A particularly skilled patent attorney could convert a unique storyline into a method performed by one of a series of possible infringers, including: a movie's writers, directors, actors, and producers; a theater's owners and employees; a movie seller's owners and employees; a novel's authors, publishers, and printers; a bookseller's owners and employees; consumers of the movie, novel, or other products; and so forth. Consider an example claim — which may be dubbed a "storyline method claim" — to a functional method of implementing *Memento's* plot to the "useful, concrete, tangible result" of producing valuable entertainment:

A process of relaying a story having a unique plot, the story involving characters and having a timeline, comprising:

indicating that a first character has an inability to retain long-term memories after a time in the timeline;

indicating that said first character trusts notes written by said first character;

indicating that said first character believes that said first character has been wronged by a perpetrator;

indicating that said first character desires to perform an act of retribution against said perpetrator;

indicating that said first character believes that attempting to perform said act is a futile endeavor; and

indicating that said first character writes a note to said first character indicating that a second character, whom the first character believes is not the perpetrator, is the perpetrator.

The above example, which seems to catch the essence of the movie's underlying storyline, looks and feels like a method — an ordinary, functional, useful method. Subjective words such as “trusts,” “believes,” “desires,” and “wronged” should not raise problems of indefiniteness under Section 112 because the steps actually being performed are “indicating.” In other words, a step of “desiring” might be problematic because desiring is an introspective, subjective mental process that can doubtfully be measured and, nevertheless, produces no useful, tangible result per se. However, “indicating a desire” is clear — a jury *knows* what that looks like, particularly if the specification gives concrete examples of how one might indicate a desire, and it produces a useful, tangible result: an indication.

Notice that the above claim form is aimed broadly. A director infringes it at least when she makes a movie implementing the implicitly claimed storyline (and possibly at other times, such as a showing of the movie); an actor infringes it at least when he plays his part as the first character; an owner of a movie theater infringes it at least when he shows the movie; the consumer infringes it at least when she plays a DVD containing the movie; and so forth.

Of course, different claim forms can and should be tested. The author has submitted to the U.S.P.T.O. several test patent applications on novel storylines, utilizing various claim forms and a creatively distributed lexicon. Regardless of which structures and words, if any, ultimately pass muster in the Patent Office and subsequent litigation, the present pursuit is guided by the realization that, fundamentally, the making of a movie (or writing of a novel or filming of a television show, etc.) involving a new, nonobvious storyline requires the performance of *certain definite steps*. The combination of the fewest steps-necessary to produce a movie or novel or show having the new storyline is a method that should be and, consistent with existing law, probably is patentable.

IV. ANALYSIS

The legal analysis is straightforward. A method is a method and should be examined as such.³¹ The Supreme Court has made clear that statutory subject matter includes “anything under the sun that is made by man.”³² Unless the claimed invention is merely a law of nature³³, a

natural phenomenon³⁴, a manipulation of basic mathematical constructs³⁵, an abstract idea constituting disembodied concepts or truths that are not useful³⁶, or an incomprehensible claim to an abstract energy state³⁷, it is patentable subject matter. There is simply no statutory or common law exempting from patentability a useful method for producing entertainment.

Other claim forms, besides methods, may also be patentable subject matter, such as an article of manufacture containing the storyline. Consider a claim — which may be dubbed a “storyline article claim” — to a storage medium, such as a DVD or video cassette:

A machine-readable storage medium storing information and configured to cause a machine to perform a process of relaying a story having a unique plot, the story involving characters and having a timeline, the process comprising:
indicating that a first character...

The above claim format is substantively indistinguishable from the thousands of computer program product claims allowed by the Patent Office since *In re Beauregard*. If a computer disk containing a functionally unrelated but independently patentable software is patentable, should not a DVD containing an independently patentable storyline (in the form of a method executed by a consumer via her DVD player) also be patentable? Further, as previously discussed, a book-bound fictional novel containing a patentable method is probably patentable simply because the inscriptions in the pages of a novel just are a computer program — given a computer programmed to read prose as a software language. A patentable software program embodied in a tangible medium is patentable. Analogously, a patentable storyline method embodied in a tangible medium — e.g., a novel — may also be patentable subject matter.

A storyline method or article claim, such as the ones offered above, would have all the rights and responsibilities of any other patent claim. For example, a patent on a particular software method or software-containing medium would cover every embodiment of the claimed

³⁴ *Id.*

³⁵ *In re Warmerdam* at 1360.

³⁶ *State St. Bank* at 1373.

³⁷ *In re Bouczyk* at 911.

³¹ *State St. Bank* at 1377.

³² *Chakrabarty* at 309.

³³ *Id.*

invention: whether the software is written in C++, Pascal, or XML, whether the software is continuous or contains multiple subroutines, whether the software includes explanatory editorial notes or not, whether an input is called "I" or "Input4," and so forth. Each different expression of the underlying software may be independently copyrightable, but every expression would be covered by the patent. Similarly, a patent on a particular storyline method or storyline-containing article or manufacture would cover every embodiment of the claimed invention. Every possible expression of the storyline — whether involving five characters or ten, whether set in Amsterdam or Chicago, whether told in the first person by a Nigerian heroine or in the third person by a Chinese hero, whether embodied in a novel, a script, a movie, an advertisement, a television program, or a radio show — would require infringement of the claimed method or article of manufacture. Again, each different expression of the underlying storyline may be independently copyrightable, but every expression would be covered by the patent. Just as a patent granted on a software method or software-containing medium effectively covers the underlying software itself, so a patent granted on a storyline method or storyline-containing article of manufacture effectively covers the underlying storyline itself.

However, a valid plot or storyline claim would also have to maintain important responsibilities. Though the present paper advocates the proposition that storyline claims — drafted either as the methods necessary to create the useful, tangible entertainment forms containing those storylines, or as the articles of manufacture (e.g., electronic or printed media) actually containing those storylines — are patentable subject matter under Section 101, that the claims must also pass the other more stringent tests of patentability cannot be overemphasized. An old storyline can never be patentable (Section 102). A storyline obvious to one of ordinary skill in the art can never be patentable (Section 103). An indefinite storyline can never be patentable (Section 112). As with any expansion in the scope of available patent protection, such as that to include so-called business methods, there is concern that intellectual property previously commonly owned is suddenly stripped of its public status. But such is the province of the primary gatekeepers of patent law: Sections 102 and 103. In other words, there is no fear that expanding the scope of Section 101 will strip from the public its property if the property did not already exist.

V. PUBLIC POLICY

Chances are quite good that, guided by existing case law and Patent Office policy, a storyline method would be treated as just that: a statutory method that must be evaluated for novelty, nonobviousness, and other statutory requirements. And, insofar as the printed matter doctrine is dead, particularly as it applies to a functional method embodied in a tangible medium, chances are also good that a storyline article of manufacture (e.g., a DVD or book) would be treated similarly. However, one cannot avoid that patent law is guided, both legislatively and in courts, by a public policy that has a primary aim of increasing the wealth of the public domain by enticing inventors to invent (and publicize their inventions) in exchange for limited-term exclusive rights to their respective inventions, and a secondary aim of fairness to inventors. Are these aims served by acknowledging that storyline methods and articles of manufacture are, indeed, statutory subject matter?

No doubt there is the practical concern that no competent examining unit at the Patent Office currently exists to examine such patent applications. However, this concern is not sufficient by itself to exclude otherwise patentable subject matter from examination. The same issue was faced — and ultimately addressed via iterative steps of improving Patent Office examination quality and invalidating non-novel or legally obvious patents during litigation — several times before, most notably with the Federal Circuit's allowance of business method patents in *State St. Bank*. The question remains: should storyline patents be granted?

If the previously offered example of *Memento* provides any indication, an embodied story (whether in a novel, a movie, a television program, a radio show, an advertisement, etc.) can have two valuable features: the underlying storyline and the particular creative expression of that storyline. The underlying storyline of *Romeo and Juliet*, at the time of its creation, was neither novel nor excessively creative. Children of two warring families enduring a tragic love affair is probably as old as spoken language. But the particular expression of that underlying storyline is today as brilliant and beautiful as the day it was written. Conversely, one could imagine a plot so inventive, so surprising, and so profound that any expression of it is valuable. Such would be the scope of a storyline patent.

There is something fundamentally inventive — in the same way that conceiving of a new rocket engine design is inventive — about creating a new storyline. The flash of inspiration is the same. One does not conceive of a new rocket engine by *building* a rocket, but one could

express that conceived engine by doing so. Analogously, one does not conceive of a plot by expressing it, but one could express a conceived plot. The spark of ingenuity is what gives rise to the infinitely many ways of expressing an invention — whether in the form of a tangible rocket engine or a novel — but without the invention there is nothing to express. A particular rocket engine is but one of infinitely many embodiments of a rocket engine invention, just as a particular novel is but one of infinitely many embodiments of a storyline invention. They are both inventions in a very real sense, distinct from their possible expressions.

Consider an analogy to what is clearly patentable subject matter — an automobile — and how a hypothetical lack of available utility patent protection would impact the above stated public policy aims. Assume, for example, an automobile could only be protected under a design patent (which acts as a sort of “copyright” on ornamental designs). An inventor, in a flash of inspiration, conceives of a novel internal combustion engine that is twice as efficient as existing engines. He attempts to obtain intellectual property protection on what is the very epitome of a useful, valuable invention. Sadly, he is a terrible automobile designer and a particularly bad artist, such that the scope of his attempted design patent protection is limited to an ugly automobile that will not sell. Meanwhile, a non-inventor, who is in contrast a skilled designer and artist, has spent his career misappropriating the good ideas of others and compiling them into aesthetically pleasing final products. He learns of the inventor’s original conception of a highly efficient engine and incorporates it into his next automobile design. His works, of course, are protectible under the same design patent laws, the difference being that the non-inventor’s protection is *infinitely* more valuable — after all, given the choice between two automobiles, both incorporating the novel high-efficiency engine and identical except for their appearances, every consumer will choose the more aesthetically pleasing of the two — in spite of the non-inventor’s outright misappropriation of the inventor’s good idea. Such a scenario would trump patent law’s stated aims because, first, would-be inventors of novel high efficiency engines would have little or no economic incentive to publicize their inventions (or even to invent at all, particularly where trade secret maintenance is a practical impossibility), and second, fairness dictates that the inventor receive protection for what he really invented: a valuable new engine, not an ugly automobile.

In the real world, the above scenario does not occur, because the inventor’s engine invention is protectible by a utility patent. Without utility patent protection for novel storylines, analogous scenarios occur

on a regular basis with regard to fictional storylines. Is that why most movies and books relay the same hackneyed plots over and over again? What inventor, who isn’t akin to Poe, would endure the time, sweat, and tears to embody his unique plot into a marginally readable novel or movie script, protectible only under copyright law, when a skilled, experienced Hollywood writer could lawfully, without even invoking copyright’s “derivative” protection, embody the unique plot in a far superior story?

Inventors are not typically akin to Poe. In fact, few inventors are skilled at writing at all — hence the enormous market for \$300-an-hour patent attorneys. How can the public interests of fairness and of encouraging invention and proliferation of new and useful forms of entertainment be served if storyline inventions cannot be protected for what they are? Storylines are not expressions of anything. A storyline is not conducive, in and of itself, to copyright protection. A storyline is an *invention* that may be embodied in a useful, functional method for relaying that storyline, or in a tangible medium containing that storyline. Patent protection for storyline methods or storyline articles of manufacture is the next logical legal step in furtherance of the stated aims of patent law.

The following is an excerpt from one of the author’s several test storyline patent applications already submitted to the Patent office.

Hollywood has been failing. Hackneyed plots are commonplace in modern movies and creativity has been replaced by expensive “special effects.” Elaborate explosions and sophisticated fight scenes bore even the slightest intellect where the storyline is confused, dull, or lacking. There is a substantial need for original, intellectually exciting plots in all forms of entertainment, such as novels and, particularly, motion pictures.

Traditionally, patent protection has provided the economic and moral impetus for technological improvements in all fields. An inventor is motivated to absorb the substantial financial, time, and personal costs of identifying problems with current technologies and inventing solutions to those problems when he is assured the right to exploit that invention by excluding others from making, using, selling, offering to sell, and importing his invention.³⁸ Where patent protection is not available or is not easily obtained or enforced, such as in the typically statist welfare countries of Central and South America and communist countries such as China, technological

³⁸ U.S.C. §271.

progress is stunted by at least two causes: a) inventors employed by a company have little motivation to disclose their inventions to the public, and thus tend to keep their inventions as trade secrets within the company; and b) independent inventors have virtually no motivation whatsoever to disclose their inventions to anyone, because of (justifiable) fears of expropriation.

In much the same way, the progress of intelligent fictional plots, particularly of movies, has been stunted worldwide. Currently, a writer may receive free, comprehensive, and automatic copyright protection on anything she writes. If her skill consists primarily of expressing old, stale concepts in new, creative, exciting ways, then she will benefit from copyright protection. However, if her skill consists primarily of inventing new and unique broad concepts, then copyright protection will only protect one of uncountably many possible expressions of those new and unique concepts. This dangerous dichotomy is explained further.

Patents and copyrights aim to protect different interests. A copyrighted work is a particular expression or embodiment of a broader concept. For example, a broad concept might be, "Life is worth living for its own sake, and the only economic system that respects humans' right to live freely for their own happiness, without brute force compulsion to be sacrificed for the benefit of others, is capitalism." A particularly beautiful expression of this broad concept is Ayn Rand's *Atlas Shrugged*, which is subject to copyright protection. Ayn Rand's estate does not own all embodiments of the broad concept — only the single expression embodied by her novel.

In sharp contrast, a patented invention protects each and every possible embodiment of a broad invention. Consider a patent on a car. It is not a particular actual car that is the subject of a patent, rather the whole class of possible cars that fall within the scope of the patent. In other words, a particular car is simply one protected embodiment of the broader patented invention. Because of the broad scope of rights afforded to a patent owner, one may not receive a patent on an invention that is old or obvious.³⁹

Thus, patent protection and copyright protection differ substantially on the ease with which infringement may be avoided. Because a patent protects all expressions or embodiments of the single broad invention, a competitor who desires to use or sell the invention without paying royalties may not; it may only avoid patent infringement by paying royalties or avoiding the invention altogether. In sharp contrast, a competitor who desires to use the broad concept disclosed in another's

work (e.g., book or article) may freely do so without infringing any copyrights, even when the broad concept is new and nonobvious. All the competitor must do is to create a moderately different expression of the broad concept.

It is clear that copyrights protect those who are good performers: those who sing well, dance well, write well, act well, and so forth. Copyrights are based on a system of recognition in which society rewards performers because they express an old concept in an original (and hopefully desirable) way, not because they express a new concept. Of course, many artists do invent original concepts, but it is their expression of those concepts, not their creation or invention of those concepts, that copyright protection rewards.

For example, one who sings a touching version of "White Christmas" may receive copyright protection on his performance — not because he invented the concept of singing about Christmas — not because he wrote the lyrics to the song — but because his particular vocal expression of it is original. Further, a woman who writes and performs a love song may receive copyright protection on both the lyrics and her performance — not because she invented the concept of singing about love — but because her particular written expression of love, and her particular vocal expression of those written lyrics, are original. Finally, consider the man who invents an entirely new and nonobvious type of music or method of performing music. Clearly, copyright law cannot protect his invention. His only possible recourse — which, to date, has not been tapped for the field of artistic inventions, such as original movie plots and new types of artistic expression — is patent protection.

There is no reason — neither statute nor case law nor PTO practice — why artistic inventions are not patentable subject matter under 35 U.S.C. §101. In the landmark decision *Dianond v. Chakrabarty*, the Supreme Court held that living creatures were patentable subject matter under the doctrine that statutory subject matter includes "anything under the sun that is made by man," with three exceptions: laws of nature, physical phenomena, and abstract ideas. According to the Manual of Patent Examining Procedure, these three exceptions recognize that subject matter that is not a practical application or use of an idea, a law of nature, or a natural phenomenon is not patentable.⁴⁰

Certainly a movie implementing a unique plot is a practical application or use of the unique plot, so the unique plot should not be barred patentability under §101. The invention of a new plot is just that — an invention — not merely an expression of an existing concept. Similarly, the practical application or use of any new artistic invention should be patentable subject matter.

³⁹ 39 U.S.C. §§102-103.

⁴⁰ 40 §2106 (IV)(A).

The fact that each particular expression (e.g., a movie) of a broad artistic invention (e.g., an original plot) is subject to copyright protection is not unique to artistic inventions. For example, the software code on a patented software-containing disk may also be copyrighted. The defining criterion separating the subject matter of patents from copyrights is *not* whether the subject matter is related to art — see the amusing counterexample of U.S. Patent No. 6,213,778 to Cohen. Rather, the defining criterion is whether the subject matter is a broad concept practically applied or used (in which case a patent is appropriate), or a particular instance, embodiment, expression, or performance of the broad concept (in which case a copyright is appropriate).

There is little fear that artistic creation will be halted due to the enforcement of patent protection newly applied to artistic inventions. A love song composer may indefinitely continue writing love songs without worry of infringing any patent, because the concept of writing songs about love is old and not patentable. Statute clearly requires an invention to be new and nonobvious to receive patent coverage. Thus, even if the broad concept or invention of singing about love were statutory subject matter under §101, it is as old as civilization, and would not survive an attack under §§102-103. In fact, most artistic concepts today are very old — which is precisely the problem that must be remedied by patent protection for artistic inventions. Unless patents on artistic inventions are upheld and enforceable, the great artistic minds of the day will be compelled to continue composing predictable love songs for pop stars and slightly altered dialogues for carbon copied movie plots.

There is currently little motivation for artistic inventors to innovate new plots, themes, and methods of expression. The value of an innovator's copyright, if he in fact embodies his invention in a particular expression (such as a novel or movie) is far less than the value of the invention itself, because the invention umbrellas every possible embodiment. Further, and perhaps more importantly, the value of his copyright depends on his ability *as a performer*, not *as an inventor*. An artistic inventor who invents a fantastically original and compelling storyline may not be a particularly skilled writer. He may, for example, have a very limited vocabulary and a poor understanding of grammar. Any book he creates will be avoided by any potential buyer who reads the first paragraph, such that the copyright value of his extremely valuable invention is nil. Any Hollywood producer who sees through the book's garbled sentence structure to the excellent and creative plot beneath the surface may steal the only value the book contained: its inventive plot. The producer may then moderately alter the expression of the plot in a subsequent movie — while keeping the plot's essence fully intact — and obtain *unearned* financial benefit from the inventor's *unrewarded* hard work and innovation. If there is any evil that the United States patent system ought to prevent, it is this.

Said another way: the *value* of a singer's performance or a dancer's performance or a writer's performance or an artist's performance is in the *performance*, while the value of an inventor's invention is in the *invention*, not a single instance, embodiment, expression, or performance of the invention. The value of a performance is protected by copyright; the value of an invention is not. An artistic innovator is given but two choices absent patent protection: to sacrificially innovate for the unearned benefit of thieves, or to not innovate. Both options are morally and practically repulsive.

A patent system that sanctions and defends patents on artistic inventions, such as new and nonobvious plots, will spur an array of never-seen-before, never-experienced-before, intellectually inspiring forms of entertainment. A patent system that lethargically clings to an as-of-yet unarticulated rule that artistic inventions are not patentable subject matter because they are not closely enough related to a mechanical gear or an electronic integrated circuit will guarantee our nation the same repertoire of mind numbing movies and dime-a-dozen boy bands.

VI. CONCLUSION

Case and statutory patent law provide no binding distinction, with regard to statutory subject matter, between software methods and storyline methods. Even tangible media containing unique storylines are so legally analogous to patentable software contained on functionally unrelated computer disks that DVDs and novels — the very epitome of “printed matter” — are probably “articles of manufacture” under Section 101. Will the Commissioner of Patents or the Federal Circuit agree? With several test patent applications already pending in the U.S.P.T.O., only time will tell.

To be continued...

POST SCRIPT

The Author presently seeks collaboration by a reputable intellectual property law firm in developing and advancing this new patent law field, including arguing the patentability of Storyline Patent claims before the Federal Circuit, if necessary, and in sharing in new business that may arise from the allowability of Storyline Patents. For further information, see www.PlotPatents.com, or contact the Author at info@PlotPatents.com.

doctrine with prosecution history estoppel in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*²⁴⁸ Simplicity and conceptual elegance are virtues in the law, even if they may not be in our efforts to understand the natural world.²⁴⁹

As discussed in another article, the Supreme Court or Congress should abolish the doctrine of equivalents in its current form and should limit patent protection to equivalent embodiments of literally construed claim language.²⁵⁰ In doing so, the Court or Congress will restore to the Patent Act the primacy of the distinct claiming provision and the implied disclaimer doctrines developed by the Court under the 1870 Patent Act, and will better assure that patents protect only what applicants regard as their inventions and a fair scope for their invented principles. The Court or Congress also should carefully consider and potentially revise the extent to which claims may directly apply to later-arising equivalent technologies, in order to better assure that patent law will "promote ... Progress."²⁵¹

Software, Components, and Bad Logic: Recent Interpretations of Section 271(f)

Andrew F. Knight, M.S., J.D.¹

ABSTRACT

In a string of recent cases, federal courts have held Microsoft Corporation liable for U.S. patent infringement under 35 U.S.C. §271(f) for exporting lawfully obtained software to foreign manufacturers who copy the software onto computers that are sold and used overseas. Asserting that their holdings are consistent with the strictly territorial reach of U.S. patent law, these courts have justified their decisions by reasoning that software — the underlying information capable of instructing a machine to perform a desired operation — is a "component" whose export may subject the exporter to liability under Section 271(f). Unfortunately, a clearer and more harmonious understanding of the nature of software dictates that many, many other objects — not just CD-ROMs and floppy disks — contain information capable of instructing a machine to perform a desired operation, including lawfully obtained plans or drawings of a patented invention. In other words, current precedent, if meticulously and correctly followed, spells the demise of U.S. patent law territoriality.

I. INTRODUCTION

In a series of recent cases, federal courts have held that raw information — particularly, the underlying information in a software code — is a "component" for purposes of 35 U.S.C. §271(f), thus subjecting a person to infringement liability for exporting such information without authorization from the patent holder. The problem

²⁴⁸ 535 U.S. 722 (2002). See Samoff, *supra* note 44.

²⁴⁹ Cf. Peter Drummond, *Elegance: Keeping it Simple and Testable*, PHYSICS TODAY, ONLINE, at <http://www.aip.org/pt/vol-53/iss-8/p12b.html> (last visited Mar. 4, 2003) ("In the interest of clearness, it appeared to me inevitable that I should repeat myself frequently, without paying the slightest attention to the elegance of the presentation. I adhered scrupulously to the precept of that brilliant theoretical physicist L. Boltzmann, according to whom matters of elegance ought to be left to the tailor and the cobbler.") (quoting ALBERT EINSTEIN, RELATIVITY (1916)).

²⁵⁰ See Samoff, *supra* note 45.

²⁵¹ U.S. CONST., art. I, § 8, cl. 8.

with such an interpretation, however, is that software is no more than a set of instructions for causing an appropriately configured machine to perform a particular operation. Thus, *any* information which causes *any* machine to perform a particular operation is software and, hence, a "component" under Section 271(f). This paper will argue that the far-reaching but necessary result of this interpretation is the death of the long-standing doctrine of U.S. patent law territoriality. To preserve territoriality, courts should interpret "component" in a manner that excludes information, instructions, and software.

II. BACKGROUND

A. STATEMENT OF THE PROBLEM

35 U.S.C. §271(f)(1) identifies as an infringer one who "without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred with the United States." In the case of supply from the United States of a software master that is, outside of the United States, copied and installed on computers to form a computer system that would infringe a United States patent if such a copy and installation occurred within the United States, is the information contained in the software master a "component" under Section 271(f)(1)? Said more simply, can software be a "component" for Section 271(f)(1) liability?

B. PATENT INFRINGEMENT TERRITORIALITY

Application of U.S. patent law has, historically, remained territorial, and has not typically extended to foreign activities. The Supreme Court in 1856 stated that the patent laws "do not, and were not intended to, operate beyond the limits of the United States; and as the patentee's right of property and exclusive use is derived from them, they cannot extend beyond the limits to which the law itself is confined. And the use of it outside of the jurisdiction of the United States is not an infringement of his rights, and he has no claim to any compensation for the profit or advantage the party may derive from it."² Further, "The right conferred

by a patent under our law is confined to the United States and its territories ... and infringement of this right cannot be predicated of acts wholly done in a foreign country."³

These principles are maintained today. A patentee's rights are limited to preventing others from making, using, selling, and offering to sell "throughout"⁴ or "within the United States,"⁵ and importing "into the United States,"⁶ the patented invention, with a few specifically delineated exceptions. One long-standing exception is contributory infringement, in which a person may be liable for actively inducing another to directly infringe a patent.⁷ Further, "although the patents laws of the United States do not have extra-territorial effect, 'active inducement' may be found in events *outside the United States* if they result in a direct infringement here."⁸ Another exception to the territorial effect of U.S. patent law is that a person may directly infringe a U.S. patent on a system by "using" the system in the United States, even where one or more components of the system are located outside of the United States.⁹

C. DEEPSOUTH AND ENACTMENT OF SECTION 271(F)

In the 1950's, Laitram Corp. was awarded two patents for machinery used for deveining shrimp. DeepSouth Packing Co. manufactured parts of the patented deveining machines, packed them in separate boxes, and sold them to foreign buyers with the intention that the foreign buyers assemble the parts and use the machines overseas.¹⁰ "DeepSouth sells these components as though they were the machines themselves; the act of assembly is regarded, indeed advertised, as of no importance," and may take place in less than one hour. Laitram accused DeepSouth of infringing its patents by both "making" and "using" Laitram's patented deveining machines via DeepSouth's practice of shipping parts overseas for assembly and use outside of the United States. The Supreme Court

3 *Dowagiac Mfg. Co. v. Minnesota Moline Plow Co.*, 235 U.S. 641, 650 (1915).

4 35 U.S.C. §154(a)(1).

5 35 U.S.C. §271(a).

6 *Id.*

7 35 U.S.C. §271(b).

8 *Honeywell, Inc. v. Metz Apparaturwerke*, 509 F.2d 1137, 1141 (7th Cir. 1975), emphasis added.

9 *NTP, Inc. v. Research in Motion, Ltd.*, 392 F.3d 1336 (Fed. Cir. 2004) (holding that use of a system having all but one of its components located in the United States, where "the control and beneficial use" occur in the United States, constitutes "use" under Section 271(a)).

10 *DeepSouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 523-4 (1972).

rejected Laitram's argument that "'substantial manufacture [because complete manufacture domestically was not involved] of the constituent parts of (a) machine' constitutes direct infringement when we have so often held that a combination patent protects only against the operable assembly of the whole and not the manufacture of its parts."¹¹ It also rejected Laitram's argument that Deepsouth contributorily infringed, because "there can be no contributory infringement without the fact or intention of a direct infringement."¹²

Thus, absent a "clear and certain signal from Congress" that Laitram was entitled to damages for acts by Deepsouth, the statute existing in 1972 "[made] it clear that it is not an infringement to make or use a patented product outside of the United States."¹³ "Where, as here, the Constitution is permissive, the sign of how far Congress has chosen to go can come only from Congress."¹⁴

That said, Congress in 1984 enacted Section 271(f) to specifically overrule *Deepsouth*, providing the "clear and certain signal" expressly requested by the Supreme Court. Section 271(f) allowed a patentee to recover for infringement against one who "without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred with the United States."¹⁵ Thus, Congress eliminated the patent law loophole enjoyed by Deepsouth Packing Co. and for the first time specifically allowed recovery on a U.S. patent for foreign activities. In Section 271(f)(2), Congress also allowed a patentee to recover against one who exports a component of a patented invention that is either specifically made or specially adapted for use in the invention, but is not a staple article or commodity of commerce suitable for substantial, noninfringing use. Effectively, export from the United States of an *unpatented* component could, under either condition of Section 271(f), subject the exporter to infringement liability.

¹¹ *Id.* at 528.

¹² *Id.* at 526.

¹³ *Id.* at 527, 531.

¹⁴ *Id.* at 530.

¹⁵ 35 U.S.C. §271(f)(1), emphasis added.

D. SOFTWARE PATENTS

Section 101 of the Patent Laws, along with court precedent, sets the bounds of what is eligible subject matter. Consistent with the Supreme Court's holding in *Diamond v. Chakrabarty* that patentable subject matter includes "anything under the sun that is made by man,"¹⁶ the Federal Circuit in 1998 approved the validity of claims directed to a data processing system that implemented a mathematical algorithm to perform a useful business method.¹⁷ The key inquiry was whether the claimed machine produced a "useful, concrete and tangible result."¹⁸ The following year, in *AT&T Corp. v. Excel Communs.*, after thousands of so-called software patents had already been issued by the U.S. Patent and Trademark Office, the Federal Circuit was faced with the question of whether a bare machine-executed process — i.e., just software, no machine — could pass muster under Section 101. The court upheld the validity of the software patent because it "applies [a] Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle."¹⁹

What does a software patent claim look like? Typically, there are two forms: a) a method performed by a computer executing the software;²⁰ and b) a machine-readable program product containing instructions that cause a computer to perform a method.²¹ In the former case, the patent claim is an "ordinary" method claim to which some courts have hesitated to apply Section 271(f)(1) because of a lack of the

¹⁶ 447 U.S. 303, 309 (1980).

¹⁷ *State St. Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368, 1372 (Fed Cir. 1998).

¹⁸ *Id.* at 1375.

¹⁹ 172 F.3d 1352, 1358 (Fed. Cir. 1999).

²⁰ E.g., "1. A method for running an application program in a computer network environment, comprising: providing at least one client workstation and one network server coupled to said network environment, wherein said network environment is a distributed hypermedia environment; executing, at said client workstation, a browser application, that parses a first distributed hypermedia document to identify text formats included in said distributed hypermedia document and for responding to predetermined text formats to initiate processing specified by said text formats; utilizing...". U.S. Patent No. 5,838,906, emphasis added.

²¹ E.g., "6. A computer program product for use in a system having at least one client workstation and one network server coupled to said network environment, wherein said network environment is a distributed hypermedia environment, the computer program product comprising: a computer usable medium having computer readable program code physically embodied therein, said computer program product further comprising: computer readable program code for causing said client workstation to execute a browser application to parse a first distributed hypermedia document to identify text formats included in said distributed hypermedia document and to respond to predetermined text formats to initiate processes specified by said text formats; computer readable program code for causing said client workstation to utilize...". U.S. Patent No. 6,808,248, emphasis added.

typical "component" parts that are common in mechanical inventions.²² In the latter case, a "product" would certainly seem to have at least one component — e.g., the component of a "computer usable medium having computer readable program code physically embodied therein." By upholding the validity of a product claim whose only element is an old (i.e., unpatentable) "computer usable medium" on the basis that the program code *printed on the medium* imparts patentability under Sections 102 ("novelty") and 103 ("nonobviousness") to the otherwise unpatentable medium, the courts have fundamentally called into question the Printed Matter Doctrine.²³ The question arises: if program code, otherwise functionally unrelated to the medium on which it is printed, can impart patentability to the medium, then is the program code also a "component" whose supply from the United States can make the manufacturer of the medium liable as an infringer under Section 271(f)?

III. ANALYSIS

A. IS SOFTWARE A "COMPONENT" UNDER SECTION 271(f)?

1. *Software Is a "Component," Say Imagexpo, AT&T, and Eolas*

Seems that Microsoft has had a bad run of luck in the Federal Circuit. In a string of cases beginning in 2003, Microsoft's arguments that software contained on "golden masters" that it exported from the United States for installation on computers overseas was not a "component" for purposes of Section 271(f)(1) have been systematically trashed. The Court's decisions prompt one to ask whether the Federal Circuit honestly missed Microsoft's point, or whether the judges were unconsciously guided by the all-too-prevalent "Microsoft-can-afford-it" mentality.

A. *IMAGEXPO V. MICROSOFT*

Imagexpo, L.L.C., owned patent rights to software whose claims, Imagexpo asserted, read on Microsoft Corporation's NetMeeting™ software. Microsoft sent "golden masters" of this software to foreign Original Equipment Manufacturers (OEMs) who then installed an exact

copy of this software on computers. Neither party contended that the software installation or computer sale or use occurred other than in foreign countries, which activity was indisputably beyond the reach of Sections 271(a) and (b). Rather, Imagexpo contended that Microsoft was an infringer under Section 271(f) because Microsoft's NetMeeting™ software was a "component" of the patented invention.²⁴

Microsoft traversed the charge by asserting that the exported software is "a template, similar to a design, instruction, or recipe," and that the template itself "is not a tangible item that physically becomes a constituent part of a protected apparatus." In other words, software is a non-component method that cannot be tangible. Microsoft relied on the *Enpat*²⁵ case to support the assertion that Section 271(f) does not apply to methods.²⁶

The Court summarily rejected this argument by concluding that software code "is a patentable apparatus [sic]."²⁷ What the Court missed is that software — which is a *set of instructions* — is by its very nature a method and *not* an apparatus. Further, to the extent that patentable software is embodied in an exported apparatus, Microsoft did *not* combine such an apparatus into a product.

B. *AT&T V. MICROSOFT*

In 2001, AT&T sued Microsoft alleging that certain Microsoft software products containing speech "codecs" (encoders and decoders) infringed AT&T's patents. Again, the issue was whether Microsoft's export of golden masters to OEMs who incorporate the software into foreign-assembled and foreign-used computers infringed under Section 271(f). Neither party disagreed that "While each OEM receives a single golden master disk, that disk is never installed on a computer sold to consumers."²⁸ In other words, AT&T did not contend that the golden master, itself, which was indisputably "supplied from" the United States, was a "component" that was combined "in a manner that would infringe the patent if such combination occurred with the United States." Neither did AT&T contend that Microsoft supplied any other "component" from the United States for assembly abroad. Rather, AT&T contended that the

²² See, e.g., *Enpat, Inc. v. Microsoft Corp.*, 6 F.Supp.2d 537, 539 (E.D. Va. 1998) (holding that a patented method lacks "components" under Section 271(f)).

²³ See, e.g., Andrew F. Knight, "A Potentially New IP: Storyline Patents," *Journal of the Patent and Trademark Office Society*, November, 2004. But see *In re Ngai*, 367 F.3d 1336 (Fed. Cir. 2004) (holding that printed instructions describing a new, nonobvious use for a product does not impart patentability to a claim directed to a combination of the product and the instructions).

²⁴ *Imagexpo, L.L.C. v. Microsoft Corp.*, 299 F.Supp.2d 550, 551-2 (E.D. Va. 2003).

²⁵ *Enpat, Inc. v. Microsoft Corp.*, 6 F.Supp.2d 537, 539 (E.D. Va. 1998) (finding that Section 271(f) does not apply to method claims, even where those method claims involve the use of physical objects).

²⁶ *Imagexpo* at 552-3.

²⁷ *Imagexpo* at 552.

²⁸ *AT&T Corp. v. Microsoft Corp.*, 71 U.S.P.Q.2d 1118 (S.D.N.Y. 2004).

underlying software itself — the information embodied on the golden master — was a “component” supplied from the United States under Section 271(f).

Microsoft argued that “the object code or software contained on the golden master disks is merely ‘intangible information,’ and thus not a ‘component’ as contemplated by Section 271(f)... [and] that Section 271(f) does not attach liability to foreign-replicated copies of the software or object code because the copies themselves are not ‘supplied from’ the United States.”²⁹

The Court rejected Microsoft’s arguments for four reasons: a) “software can be a *component* of a patented invention or infringing device,” and “Microsoft acknowledges that software is patentable”; b) there is no indication in the statutory text or legislative history to limit “components” to structural, tangible combinations; c) “excluding protection for inventions using software ‘would not be responsive to the challenges of a changing world’”; and d) cases cited by Microsoft apply only to “design or method patents, which have no components, or *instructions for assembly* of products abroad, *which is not a component*.” (All emphases added.)

There are two problems with the Court’s first reason. First, if, when the court states that software can be a “component” of a patented invention, the Court means “component” as in Section 271(f), then it is guilty of circular logic — i.e., this is the very inquiry to which the Court’s arguments are addressed. On the other hand, if the court means “component” as “part” (i.e., that a patented invention could *include* software as a part), then the Court has confused the broad concept of patentability under Section 101 with the meaning of “component” in Section 271(f). Clearly, a method step is a “part” of a patentable method claim, but this fact does not prove that a method step is a “component” under Section 271(f).

The Court’s second argument is flawed because both statutory text (e.g., Section 154) and legislative history endorse a *territorial* reading of the word “component.” Specifically, to the extent that a broad reading of “component” to include underlying software destroys the territorial effect of U.S. patent law — an argument which must be shelved and presented later in this paper — such a reading is necessarily incorrect.

The Court’s third argument fails because nobody suggests excluding protection for software inventors. Rather, the issue is whether to give a software inventor, who owns only a U.S. patent, the power to enforce that patent around the world for extraterritorial activities. To suggest that preventing the owner of an engine patented only in the United States from enforcing his patent against a man in Zimbabwe making or using the patented engine is “excluding protection” for engine inventors is inconsistent with a long U.S. history of enforcing patent law territoriality.

The Court’s fourth argument will shoot the Court in the foot once it realizes that software just *is* instructions for assembly — another argument to be momentarily shelved.

C. *EOLAS V. MICROSOFT*

In 1999, Eolas Technologies, Inc., sued Microsoft, alleging that certain aspects of Microsoft’s Internet Explorer™ product infringed its software patents.³⁰ As in the previously discussed cases, the Court was faced with the question of whether Microsoft’s supply of a golden master from the United States to its OEMs was a supply of a “component” under Section 271(f). Thus, even if the golden master was not, itself, incorporated into any final product, was the information contained on the golden master, which information was ultimately incorporated into a final product, a “component”?

In spite of Microsoft’s argument that object code is “analogous to [a chemical formula] sent abroad, not the chemicals themselves and therefore, the disk is not a component of the allegedly infringing product,” the Court decided to embark on a “philosophical argument” that deduced that “a source code is made part of a computer product [while] a chemical formula... is not part of any product.” The Court admitted that the golden master is analogous to a chemical formula in that “it is a series of directions (commands) written down so that it can be used again and again.” The two are not analogous, the Court philosophized, in the following ways: a) the golden master is an “operating element of the process which produces the result which is desired by a user or purchaser”; and b) source code, unlike a chemical formula, can never be “discarded.”³¹

Both arguments represent confusion about the nature of software. Software is a set of instructions that causes an appropriately configured machine to perform a particular operation, such as producing a desired output based on given inputs. Once software to perform a particular task is loaded into a computer's active memory — i.e., once the computer is configured to perform the desired operation — the software need not be accessed or re-loaded until the computer has been reconfigured (e.g., by turning off its power). Thus, regarding the Court's first argument, software is not really an "operating element" of *any* process. Rather, software is the instructions sufficient to cause a machine to perform the process. Regarding the Court's second argument, just because a chemist or chef has discarded a physical sheet of paper containing a chemical formula or culinary recipe does not imply that the formula or recipe has been "discarded." Indeed, it remains in the chemist's or chef's memory until used — if not (i.e., the formula or recipe has been forgotten), then it cannot be used until it is "reloaded" into memory by re-reading the sheet of paper.

The case was appealed to the Federal Circuit, which upheld the District Court's holding on somewhat different reasoning.³² In one fell swoop, the Court dismissed the requirement that a "component" under Section 271(f) need be "tangible," and concluded that "A 'component' of a process invention would encompass method steps or acts." "[E]very form of invention eligible for patenting falls within the protection of section 271(f)," the Court asserted.

The Court implicitly admitted that software is a *method* (in spite of other court holdings to the contrary) whose "components" under Section 271(f) are process steps when it stated that "This court cannot construct a principled reason for treating process inventions different than structural products [under Section 271(f)]." The author hopes that this paper will provide such a reason.

In all three of the above discussed actions, Microsoft had sent a physical, tangible embodiment of the allegedly infringing software overseas — the "golden master." However, the discussed Court holdings are broad enough to encompass the export of software via (quite intangible) time-spaced electronic pulses, such as email. Neither the discussed Court holdings nor the analysis of this paper hinge on any distinction between the export of software via tangible media or electronic pulses.

³² *Eolas Technologies Inc. v. Microsoft Corp.*, — F.3d —, 73 U.S.P.Q. 1782 (Fed Cir. 2005).

2. *Information and Instructions Are Not "Components," Say Bayer and Pellegrini*

A brief account of two competing cases, the holdings of which have been limited by the recent *Eolas* decision, are instructive on more rational court understandings of software and the nature of information.

A. *BAYER V. HOUSEY*

The first case, *Bayer Corp. v. Housey Pharmaceuticals, Inc.*, involved importation into the United States by Bayer of information produced by a process patented in the United States. However, because the actual process was performed extraterritorially, Housey contended infringement only under Section 271(g), which prohibits offering to sell, selling, or using a product which is made by a process patented in the United States, and further that information is a "product" under Section 271(g).³³ The Court held for Bayer for several reasons: a) the word "made" in Section 271(g) corresponds to the word "manufacture" (as opposed to "process") in Section 101; b) legislative history supports a reading of Section 271(g) that excludes information; and c) "reading the statute to cover processes other than manufacturing processes could lead to anomalous results." As an example of such an anomalous result, "a person possessing the allegedly infringing information could... possibly infringe by merely entering the country." *Bayer* does not directly inform as to the meaning of "component" in Section 271(f) — indeed, the first two reasons apply only to Section 271(g). However, the Court's strongest point — that raw information is fundamentally unique and should be treated differently in patent law from processes and articles of manufacture because of the risk of "anomalous results" — is enlightening because analogous reasoning applied to Section 271(f) would contradict *Eolas*.

B. *PELLEGRINI V. ANALOG DEVICES*

The second case, *Pellegrini v. Analog Devices, Inc.*, involved export from the United States of designs and instructions for the manufacture of computer chips patented by Pellegrini. The allegedly infringing chips were designed in the United States by Analog Devices, but were actually manufactured exclusively outside of the United States.³⁴ Did Section

³³ 340 F.3d 1367, 1371 (Fed. Cir. 2003).

³⁴ 375 F.3d 1113, 1115 (Fed. Cir. 2004).

271(f)(1) prohibit Analog Devices from supplying from the United States raw instructions on manufacturing the chips — i.e., are raw instructions for manufacture “components” under Section 271(f)?

The Court summarily held in Analog’s favor because “[S]uppl[ying] or caus[ing] to be supplied’ in §271(f)(1) clearly refers to physical supply of components, not simply to the supply of instructions or corporate oversight.”³⁵ Further to the Court’s holding, designs and instructions exported from the United States — even if they were embodied as *software* emailed overseas — would not be “components” under Section 271(f)(1).

The *Eolas* Court limited *Pellegrini* only insofar as *Pellegrini* does not now impose a requirement of “tangibility” on “components” under Section 271(f). However, Pellegrini’s holding that the supply of instructions from the United States is not the supply of “components” remains good law.

B. CONFUSION IN THE COURTS

1. What Is Software?

A. THE RECIPIENT NATURE OF SOFTWARE

The confusion among the courts — and even internally to the Federal Circuit — is due to a lack of understanding of the nature of software. What is software? In spite of Judge Hudson’s assertion to the contrary,³⁶ software is not an apparatus. Software is a set of instructions. However, instructions, broadly, are defined relative to the recipient of those instructions. While a verbal instruction between two people might take the form of an imperative, such as, “Wash the dishes!” they may also take the form of a statement of preference such as, “I sure would like it if you would wash the dishes,” or a statement of fact such as, “These dirty dishes are piling up, and I did the dishes last time.” Further, the clearest verbal imperative to wash the dishes would not be an instruction at all if directed to a recipient — e.g., a dog — who would not translate those words into a command. In other words, information is an instruction only insofar as the recipient of the information is configured, programmed, or designed to treat the information as an instruction. The recipient-specific nature of software may be summed up as: Software to

cause a given machine to perform an operation comprises information sufficient to cause the machine to perform the operation.

Further, because instructions are recipient- or machine-specific, *any and all* information can be, and indeed is, an instruction to some conceivable recipient or machine — i.e., all information is software. In other words, just as that which is normally perceived as instructions (e.g., “Wash the dishes!”) need not be so perceived (e.g., to one’s pet turtle), that which is not normally perceived as instructions may be. For example, a three-line FORTRAN code written as an anagram and subsequently encoded by 128-bit encryption would be perceived as an instruction only to the most skilled intelligence agent who was actually instructed to decipher and execute the software code.

Next, the content of the information need not have any pre-ascertainable relationship to the operation that the information instructs to a machine. In other words, instructions can be written in any language whatsoever. A dog could be trained by his prankster master to sit upon hearing “roll over,” to bark upon hearing “habla,” and to roll over upon hearing “do not roll over.” The fact that computer instructions happen to be written in relatively standardized programming languages (e.g., C++, HTML, XML, FORTRAN, PASCAL, BASIC, etc.) is a result of economy and efficiency, but does not change the underlying analysis of the nature of software. Further, the length of software need not have any relationship to the complexity of the operation instructed to the machine. “Mow the lawn” is a very short code but may cause a person to perform an enormously complex task comprising millions of independent operations, because the person is configured to receive such information as an instruction to perform those millions of operations. Conversely, anyone who has ever programmed a moderately complicated robot knows how many thousands of lines of code are required to cause the robot to perform what may be perceived as a simple task.

B. INFORMATION DOES NOT EXIST IN THE ABSTRACT

Information (including software) is *always embodied*; there is no “information” floating around in the ether. Information may, for example, take the form of a writing on a sheet of paper, the electronic states of a processor containing millions of transistors, the particular organization of optically readable holes on a disc-shaped plastic substrate, the time-dependent modulations of a particular radio frequency, and so forth. Information “exists” in the abstract — i.e., unembodied — only insofar as a person or machine interprets two embodiments as relaying the “same” information. For example, the

³⁵ *Id.*

³⁶ *Imageexpo* at 552.

symbol "a" printed here and the symbol "a" printed here are *not* the same. The ink by which they are printed comprises entirely different atoms. Neither a feline nor an amoeba will recognize the two symbols as being the "same." On a microscopic level, the symbols even appear completely dissimilar. Only a human, viewing the symbols holistically, will believe that the two symbols relay the same information. Only in this abstract sense are the two symbols the "same" — i.e., that they convey the same information.

Consider the nature of a CD-ROM, a disk-shaped plastic object. It may very well be fully indistinguishable from another CD-ROM to the naked human eye, because the information that the human eye is capable of measuring — e.g., color, shape, macroscopic markings, and so forth — may be identical to the *human eye* to the corresponding information of the other CD-ROM. When the CD-ROM is placed in a CD-ROM drive, a computer will make lots of different (and more precise) measurements of the disk, such as the locations of millions of tiny optically readable holes. These measurements, which the computer will read as a series of "ons" and "offs," will be interpreted as a series of instructions, because the computer is configured to interpret particular measurement results of the disk as instructions. Only insofar as the computer is configured to perform a particular operation in response to measurements made of the disk does the disk abstractly "contain" software.

Consistently, a golden master of a particular software program is an entirely different embodiment from a copy of that golden master. For the sake of explanation, assume that the golden master is embodied on a CD-ROM, while the copy is embodied on a floppy disk. The shapes, compositions, sizes, colors, textures, hardnesses, and Schrödinger wave states of the two media are so fundamentally different that a person absent the knowledge of software would laugh at the thought of one as a "copy" of the other. The media are the "same" — i.e., are "copies" of each other — only insofar as the effect they have on appropriately configured machines is similar. In other words, they may both cause a computer containing a CD-ROM drive and a floppy disk drive to perform the same operation, but only because the computer is configured to perform particular measurements on the two media that so happen to cause the computer to perform the same operations.

C. WHAT IS A SOFTWARE COPY?

A particular software code — and this is an indisputable fact about the nature of programming — could be embodied in a mile-long line of people, each person singing a particular note spanning two octaves to

embody the program written in hexadecimal. Such an example represents a "programmable" medium, in that the notes sung by the people may be changed. A medium need not be programmable — e.g., consider a photographic image of the night sky. The image could clearly be measured by a machine configured to read such an image as information (and, specifically, software instructions), causing the machine to perform a particular operation.³⁷ Also indisputable is that such an image may cause an appropriately configured machine to perform the *same operation* as the mile-long line of human singers. Is a collection of singing people a *copy* of the night sky in any sense? If not, are they at least embodiments of the same information? Clearly not, except from the perspective of the *particular* machine that was configured to perform the same operation in response to its measurements of the singing people and the night sky. That one might be a "copy" of the other — or that one might contain the "same" information as the other — is a recipient-specific abstract idea. In spite of this wacky observation — that if a CD-ROM can be a "copy" of a floppy disk, then so must a mile-long line of singing people be a "copy" of an image of the night sky — federal judges continue to discuss software without a consistent understanding of the true nature of software.

D. ALL OBJECTS ARE INHERENTLY SOFTWARE-CONTAINING MEDIA

Every object in the universe is an embodiment of information — LOTS of information. Most of this information appears to humans as "noise," which is nothing more than unappreciated or uninterpreted information. For example, almost every object in the universe contains information sufficient to cause an appropriately configured machine to replicate it. Consider a pencil. One needs not the plans, drawings, or designs of a pencil in order to replicate a pencil — the pencil itself will do. An engineer could, with sufficient time and effort, take sufficient measurements of a particular pencil and create a new pencil that is a virtual copy of the particular pencil (e.g., same in size, shape, color, texture, composition, utility, and so forth). To a person intent on copying the pencil — i.e., to a machine (of which a human is a sophisticated kind) configured to interpret information about an object as an instruction to perform a particular operation (namely, the operation of replicating) — *the pencil inherently contains software* that will cause an appropriately configured machine to perform a particular operation.

³⁷ For example, the measurement may be taken by pixelating the image and assigning to each pixel a value between 0 and 255, representing a brightness of the pixel, and so forth.

Clearly, such is not what is conventionally understood as "software," primarily because economics of efficiency have dictated the use of a small handful of software programming languages and an even smaller handful of information storage media. However, setting aside considerations of economy, a CD-ROM containing information on the construction of a pencil is *fundamentally equivalent* to an actual pencil — and hence both serve as software-containing media — to a machine that is configured to glean from each the information necessary to manufacture a pencil.

2. Why Software Cannot Be a "Component" Under Section 271(f)

A. SOFTWARE IS "INSTRUCTIONS FOR MANUFACTURING"

Consider a ladder made of wooden slats and screws. A handyman is provided with a handwritten set of instructions on how to reconfigure the ladder into a bookcase. The very explicit instructions effectively walk the handyman through the process of detaching each slat and subsequently re-attaching each slat, in such a manner that the final product is a bookcase. Of course, the bookcase comprises exactly the same materials as did the ladder. Does that imply that the bookcase existed previously? Of course not. The mere existence of the component materials of a first object, or the configuration of those materials in a second object, does not imply existence of the first object.

It is undisputed that a computer capable of performing any calculation or operation can be formed by connecting an appropriate number of Tinker Toys™ in an appropriate way with fishing line.³⁸ The "switching" (as understood by computer engineers) within the Tinker Toy computer occurs through macroscopic, physical interactions. Of course, a Tinker Toy computer is far more difficult to "program" (i.e., reconfigure for different operations) than a conventional PC, because it requires the physical disassembly and reassembly of many parts. Nevertheless, if one owned a Tinker Toy computer capable of calculating the critical mass of a nuclear power reactor core based on specific inputs, and one wanted to reconfigure the Tinker Toy computer to instead calculate the specific impulse of a rocket engine based on certain inputs, one could create or purchase a set of instructions which, if precisely followed, would allow the user to convert the former computer into the

latter computer. Such a set of instructions would rightfully be called "software." The software would be written in a human language, because the "machine" responsible for reconfiguring the Tinker Toy computer is a human person. Until the computer is reconfigured, a computer capable of calculating the specific impulse of a rocket engine simply does not exist.

Imagine that the Tinker Toys are replaced by electronic transistors, which provide exactly the same switching as the Tinker Toys did, but much more quickly and in a tiny physical space. Further, the mechanically acting human is replaced by an electronically acting one, which disconnects and appropriately connects transistors in the same way that the human disconnected and reconnected Tinker Toys according to her written instructions. Of course, this is precisely a modern-day computer. And the nature of the software hasn't changed.

Thus, software is, in a very real sense, a set of instructions for creating a *new machine* that performs operation Y from an *old machine* that performs operation X (or no operation at all). The fact that the machine may, before and after the reconfiguration, look to the unaided eye exactly the same is irrelevant; the guts of the machine — namely, the physical state of its component transistors — is completely and fundamentally reconfigured and different. Even the Federal Circuit seems to implicitly recognize this fact: "On a functioning computer... software converts its functioning code into hardware and vice versa. Thus in the context of this patentable invention, the computer *transforms the code* on the golden disk *into a machine component* in operation."³⁹

That said, a computer configured to perform operation X does not exist until a computer is configured, by loading of appropriate software, to perform that operation X. Metaphorically, the computer as store-bought is merely an electronic, compact, and attractively packaged box of Tinker Toys. Without instructions to put the right electrons in the right places, and without electricity to allow the electrons to flow in accordance with the computer's software-induced configuration, the "computer" is not a machine at all, for it is not configured to do anything — it is akin to a loose box of Tinker Toys. The software is literally a set of instructions for manufacturing a particular machine. Thus, consistent with the *Pellegrini*⁴⁰ and *AT&T* decisions, software is not a component

³⁸ A beautiful (indeed, fully functional) prototype of such a computer can be found at the Boston Museum of Science.

³⁹ *Eolas Technologies Inc. v. Microsoft Corp.*, — F.3d —, 73 U.S.P.Q. 1782 (Fed Cir. 2005), emphasis added.

⁴⁰ *Pellegrini* at 1115.

under Section 271(f) because it is only "instructions for manufacturing" or "instructions for assembly."

B. INFORMATION AS A "COMPONENT" KILLS PATENT LAW TERRITORIALITY

Any and every object in the universe inherently contains information sufficient to cause an appropriately configured machine to perform a particular operation (e.g., replication of the object) — hence, software. Therefore, where "an information- or code-base which becomes an integral ingredient in [[a]] finished computer product" is a "component" whose export from the U.S. can subject the exporter to infringement liability under Section 271(f),⁴¹ the export of *any* information regarding the manufacture of a product (including plans, drawings, sketches, descriptions, a U.S. patent, or even a lawfully acquired embodiment of the product itself) falls under Section 271(f) because such information necessarily becomes an "integral ingredient" in the finished product (computer or not).

Consider an automobile engine (patented, say, in the United States) and a fantastic machine (hereinafter "COPY machine") that is capable of replicating physical objects. For example, the COPY machine could take as an input a beer mug and, after receiving other raw material inputs (e.g., glass, electricity, etc.), could create a new beer mug of the same shape, composition, size, etc., of the input beer mug. Of course, the COPY machine isn't *that* fantastic — humans have acted as such a machine for millennia. The COPY machine could, for example, be a fully automated, robotic construction facility that technologically could be built today.

A lawfully purchased embodiment of the patented automobile engine is exported by a U.S. citizen to, say, Zambia, where the COPY machine is located and where the automobile engine is *not patented*. A worker in Zambia places the engine in the COPY machine's input, adds some molten steel in a side input, plugs the COPY machine in to an electrical outlet, and presses the "on" button. The COPY machine begins by measuring some of the information embodied in the engine. The COPY machine may include laser sources and imagers, X-ray sources and imagers, robotic arms that can deconstruct and reconstruct the engine, mass scales, chemical analyzers, and so forth, all of which extract information from the automobile engine sufficient to replicate it.

Next, it compiles the measured information in an onboard processor which creates and stores a virtual representation of the engine and, based on that representation, the COPY machine begins to construct a replica of the engine. The COPY machine may include molds, lathes, milling machines, grinders, drill presses, saws, and so forth, that allow it to construct any physical object (of a reasonable size) based on the virtual representation. The machine's product is a working replica of the automobile engine which would infringe the U.S. patent were the engine replicated in the United States.

In the above example, the automobile engine is inherently a software-containing medium (no less so than a CD-ROM containing information corresponding to the aforementioned virtual representation), and the COPY machine is a machine configured to "read" the medium's software (by making measurements of the medium) and to perform an operation in accordance with the software. If so, then, consistent with the recent *Eolas* holding, export of the lawfully obtained automobile engine for replication in Zambia would infringe the U.S. patent holder's rights under Section 271(f).

If the thesis of this paper is to be refuted, it cannot be done so by asserting that an automobile engine is an "imperfect analogy" to a software-containing medium. This is *not* an analogy. An automobile engine IS a software-containing medium in *precisely the same way* that a CD-ROM is a software-containing medium. They both contain software that: a) will cause an appropriately configured machine to perform a particular operation; and b) is replicable. The *only* difference between the two is that the "appropriately configured machine" in the former case (the COPY machine or a human person) is a *different machine* than in the latter case (a PC). But, of course, this distinction without a difference can be quickly annihilated by recognizing that the COPY machine could be designed to also read software from a CD-ROM. In other words, like the PC having both a CD-ROM drive and a floppy disk drive, the COPY machine could have two input containers: a first in which a CD-ROM may be placed and measured by the machine; and a second in which an actual embodiment of an object to be copied may be placed and measured by the machine. In the case of a CD-ROM containing software configured to cause the COPY machine to create a replica of the patented automobile engine, is not that CD-ROM a "copy" of the automobile engine (and vice versa) *in exactly the same way* that a floppy disk is a "copy" of the CD-ROM containing the same software? While both sets of media certainly look different, they cause appropriately configured machines to perform in exactly the same way.

While every object is inherently a software-containing medium, the software contained in some objects is more easily and economically utilized due to various forms of standardization that have evolved in the field. For example, while one certainly *could* write software in Pig Latin, embody that software on a sheet of parchment inked with sheep's blood, and subsequently build a computer configured to measure the markings on that sheet of parchment and interpret that information as instructions to perform a particular operation... why bother? Why not write the software in C++ and allow a PC's decompiler translate the words in C++ into a standardized machine language that can be embodied on one of many standardized media, such as a CD-ROM? It's much easier, more efficient, less costly, and doesn't require a fresh supply of sheep's blood. However, that software and software media happen to be standardized for purely reasons of economy and efficiency does not alter the fact that every object is inherently a software-containing medium, nor should it alter the legal analysis regarding the treatment of software (such as whether software information is a "component" under Section 271(f)).

If every object — including objects patented in the U.S. — inherently contains software (e.g., at least the software sufficient to cause an appropriately configured machine to replicate the object), then anyone who copies the object also copies the object's software. But if unembodied software is a "component" of an object under Section 271(f), then anyone who exports this software may be liable under Section 271(f), even where the patented object is actually made and used extraterritorially. But this software, which is in its simplest form the software sufficient to cause an appropriately configured machine to replicate the object, may be embodied in many ways: in the object itself, in a drawing or description of the object, even in a U.S. patent itself! A U.S. patent — a written document — contains information sufficient to cause an appropriately configured machine to replicate a patented object. Thus, anyone who exports a lawfully obtained copy of a U.S. patent or a lawfully obtained embodiment of a patent may be liable under Section 271(f). Of course, such a result both borders on the absurd and utterly kills the Congressional mandate of patent territoriality.

While it is undisputed that copying the automobile engine in Zambia is not an infringement of the U.S. patent — with or without Section 271(f) — those who don't understand the nature of software have created precedent which, when applied consistently with the actual nature of software, results in the contradiction that copying the automobile engine in Zambia is an infringement of the U.S. patent.

IV. PUBLIC POLICY AND CONCLUSION

The Federal Circuit is free to interpret U.S. patent law to the extent such interpretations do not directly conflict with its fundamental tenets. As tempting as it may be to foot "Moneybags Microsoft" with as many bills as possible, such temptations should be tempered by more pressing concerns, such as correctly interpreting the law. Information, of which software is a subset, is not and cannot be a "component" under Section 271(f) without first destroying the territoriality of U.S. patent law. Of course, to the extent that the Supreme Court does not strike down such an action as unconstitutional, Congress is free to enlarge the geographic reach of U.S. patent law. However, until the Federal Circuit obtains a "clear and certain signal from Congress" in the form of legislation, it should hold for Microsoft in an en banc hearing of *Eolas v. Microsoft*.